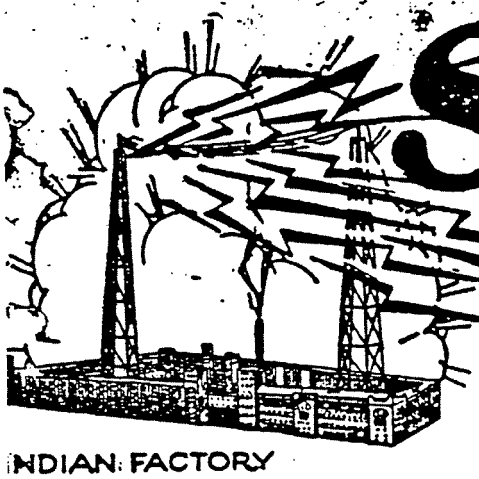


Service Shots

FOR Indian Dealers

March 4, 1937 No. 70

TIMING MAGNETO EQUIPPED SPORT SCOUT

First, remove the oil level screw at the lower left side of crankcase. Have machine in high gear with spark plugs removed and rotate motor in direction of travel until a cross (-I-) appears in center of oil level screw hole. Make sure that both valves on rear cylinder are closed, exhaust and intake tappets free. The rear cylinder is now on top dead center compression stroke.

With the motor chain in place, put magneto gear on shaft with magneto shaft and gear key in place and then line up mark on magneto gear with mark on magneto gear case housing located at the second screw on the front of the magneto gear housing.

Your motor is now timed at factory setting.

LUBRICATION OF PRIMARY DRIVE AND TRANSMISSION

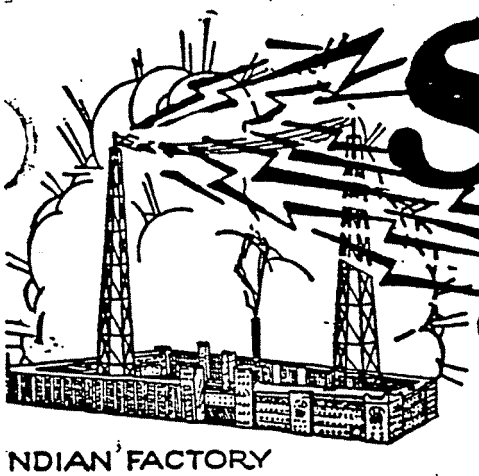
When clutches run into a chattering condition when being engaged, it is generally due to the fact that the oil should be changed in the primary drive, also transmission.

Drain the oil and refill primary case up to the oil level screw located on left side of primary cover below the clutch lever, using SAE-20W for temperatures of freezing or below; and SAE-50 for temperatures freezing and above.

DRY SUMP BACK PLATES

When you have an opportunity to work on 1934 or 1935 machines you have a splendid chance to sell your customer some real service. The 1936--37 sump valve back plate assembly can be fitted to the 1934--35 housing, and with this new type plate a better return of the oil to the tank is insured, and this naturally improves the oil mileage. The back plate assembly for the 30:50 and the 45s is numbered 40729, and for the 74s the number is 40730, both listing at $2.00.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

For Indian Dealers

No. 71

CRANKCASE LOADING WITH OIL AND EXCESSIVE OIL CONSUMPTION

Check oil return line from crankcase sump valve to pump for loose connections, which cause air leaks. When cleaning sump valve, make sure that the sump valve plate is assembled to sump housing, that valve is at bottom of sump housing.

This may be assembled two ways, one of them will raise the valve higher on sump housing; automatically raising the oil level in crankcase, permitting flywheels to dip in oil, causing over oiling of motor. Inspect disc valve and screen. Note that screen does not touch return valve disc. This disc must retain its proper seat.

Flush out oil tank every 2,000 miles for cleaner and trouble free lubrication.

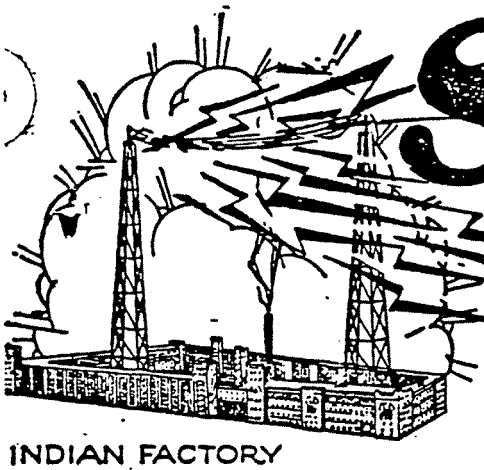
1937 WHEEL BEARINGS

The hub bearing lock nut on brake drum side, has a tendency to loosen up (due to not being tight against wheel bearing) allowing this bearing to work out of hub, and transferring side thrust to the needle bearing side, causing ends of needle rollers to wear hollow axle collar.

At the first indication of excess side play in wheels, check this nut up tight and stake it in hub shell. Grease wheel bearings well. When removing hub bearing lock nut on needle bearing side of wheel, be sure and remove lock screw on rim of hub.

Starting with the following motor numbers, all Model 237, Model 337 and Model 437 machines are fitted with a lock screw on the brake drum bearing nut and will not need staking.

Model 237	Motor No.	BCG 696
" 337	" "	CCG 2185
" 437	" "	DCG 426



Service Shots

FOR Indian Dealers

No. 79

MODEL 338 CAM CASE BREATHER

The following change in the cam case breathers is recommended on all 338 motors to reduce breather losses to a minimum:

1 - Remove and discard breather tube at oil pump.
2 - Plug breather tube hole in oil pump body with 1/4" pipe plug.
3 - With cam case cover in place, add holes as shown in fig. 1. Be sure spot face is smooth and flat. Use hard grease on drill, and tap points.
4 - Install 40807 breather tube assy. (Model 337) using 28B43 breather disc.
5 - Care must be taken in machining the cam case cover to insure a smooth flat disc for the breather disc. This is necessary if the valve is to function properly.

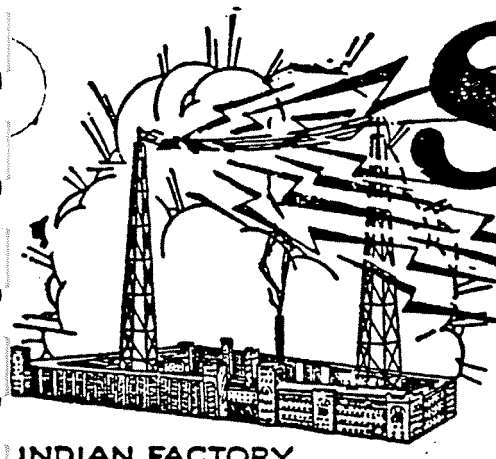
The parts required are as follows:

1 - 36B269 Pipe plug for oil pump body.
1 - 40807 Cam case breather tube assy.
1 - 28B123 Breather cage gasket.
1 - 28B43 Breather disc.
2 - D24305 Cage screw.
2 - 27B171 Fiber washer.

The necessary parts to make this installation on all Indian Chiefs that have been shipped to date will be mailed you without charge.

If any dealer is not equipped to drill the cam case covers, please return them to the factory and we will see that they are machined, drilled, and returned immediately.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPT.



Service Shots

FOR Indian Dealers

No. 81

MODEL 638 CAM CASE BREATHER

The following change in cam case breathers is recommended on all model 638 motors to reduce breather losses to a minimum.

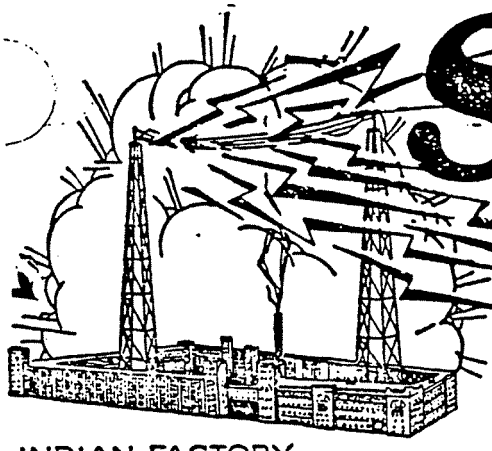
1. Remove oil pump and cam case cover.
2. Tap out center-hole between crankcase and cam case with 1/4" pipe tap. Plug hole with VF2285 plug. Stake plug in.
3. Drill out and tap 7/16" - 24 the breather hole in cam case cover.
4. Screw in and lock tight with nut, breather inlet nipple.
5. After tapping cam case cover, be sure there are no burrs on the outside face which would prevent proper operation of the breather disc.
6. Replace cam case cover and oil pump.
7. Change breather tube to 41497.

Parts required are as follows:

1 - 40718 Breather inlet nipple
1 - 24B17 Lock nut
1 - VF2285 Plug
1 - 41497 Breather tube

The necessary parts to make this installation on all Indian Sport Scouts that have been shipped to date, will be mailed you without charge.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 83
June 29, 1938

APPLYING BRAKE LININGS TO BRAKE SHOES

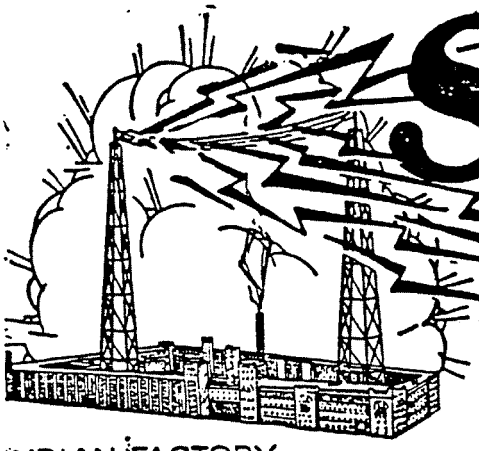
Good brakes and long brake lining life depend on the proper fitting of the linings to the shoes.

HERE ARE A FEW HELPFUL HINTS

When counterboring for rivets, use a 1/4" drill with the point or end ground to an included angle of 120 degrees or 60 degree taper each side. For the front wheel linings, drill down until straight portion of drill is just below lining face. On rear wheel linings, drill down until straight portion is 1/16" below the surface.

NOTE - After July 1, 1938, all brake linings leaving the factory on part orders will be counterbored.

When applying lining to shoes, always start with rivet in the center of the lining and work away from center to both ends. This insures a proper fit of the lining to the shoe and prevents cracking especially of the rear wheel lining.



Service Shots

FOR Indian Dealers

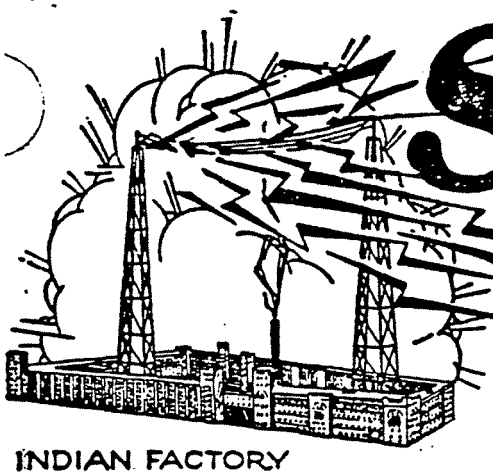
No. 88
December 16, 1938

CLEARANCES ON 1939 MODELS

	Model of Motorcycle			
	Scout Jr.	Scout 45	Chief 74	Indian 4
Intake valve tappet clearance	.004	.004	.004	.002
Exhaust valve tappet clearance	.006	.006	.006	.006
Piston Clearances				
Top land	.020	.023	.020	.026
Other lands	.015	.019	.015	.022
Skirt standard	.006	.004	.004	.005
Skirt, Bonneville		.006	.006	
Piston ring end clearance	.010-.020	.010-.020	.010-.020	.010-.020
Spark advance - Standard	7/16"-40°	3/8"-37°	1/2"-36°	5/8"-45°
" " - Bonneville		5/8"-45°	5/8"-40°	
Valve seat degree	35°	35°	35°	45°
Valve lift end play	.010	.010	.010	---
Cam shaft end play	.006	.006	.006	.002
Crankshaft end play	---	---	---	.003
Connecting rod side play	.015-.020	.015-.020	.015-.020	.001-.002
Flywheel end play-drive sprocket off	.017-.019	.017-.019	.017-.019	---
Flywheel end play - drive sprocket on	.010-.012	.010-.012	.010-.012	---
Transmission end play	.003-.005	.003-.005	.003-.005	.014-.018
Transmission countershaft gear end play	.010	.010	.010	.002
Bevel gear back lash	---	---	---	.005-.006
Camshaft bushing clearance	.001-.0015	.001-.0015	.001-.0015	.0015-.002
Piston pin clearance in rod, std.	.0015-.002	.0015-.002	.0015-.002	.0015
Bonneville		.003	.003	

6.

Model 339 Standard	Inlet opens	10° (.060)	B.T.D.C.
	Exhaust opens	60° (.795)	B.B.D.C.
Model 339 Bonneville	Inlet opens	30° (.400)	B.T.D.C.
	Exhaust opens	60° (.795)	B.B.D.C.
Model 439	Inlet opens	12° (.033)	B.T.D.C.
	Inlet closes	60° (.650)	A.B.D.C.
	Exhaust opens	60° (.650)	B.B.D.C.
	Exhaust closes	8° (.013)	A.T.D.C.
Model 539	Inlet opens	10° (.037)	B.T.D.C.
	Exhaust opens	60° (.625)	B.B.D.C.
Model 639 Standard	Inlet opens	10° (.050)	B.T.D.C.
	Exhaust opens	60° (.730)	B.B.D.C.
Model 639 Bonneville	Inlet opens	34° (.359)	B.T.D.C.
	Exhaust opens	60° (.730)	B.B.D.C.



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

No. 89
April 3, 1939

DISPATCH TOW BRAKES

HOW TO ELIMINATE NOISES

Dispatch Tow models using the 8-1/4" drum, sometimes develop noise at this point. This noise is caused by vibration of the brake band and can very easily and effectively be eliminated by fitting rubber bushings to the two brake anchor pin brackets.

These brackets are located, one on either side of the brake lever.

Remove these brackets and drill the anchor pin holes to 23/32" diameter. (They are now 1/2").

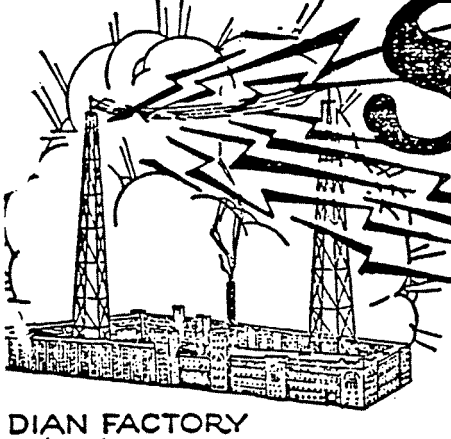
Into these holes, press rubber bushings #42240. Then chamfer one end of the brake lever anchor pin through the new bushing.

Make sure that the brake band is in the center of the drum and does not touch either flange of the drum.

NOTE: - If you have trouble pushing the pin through the rubber bushing, a little water on the pin will make it go through easier.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

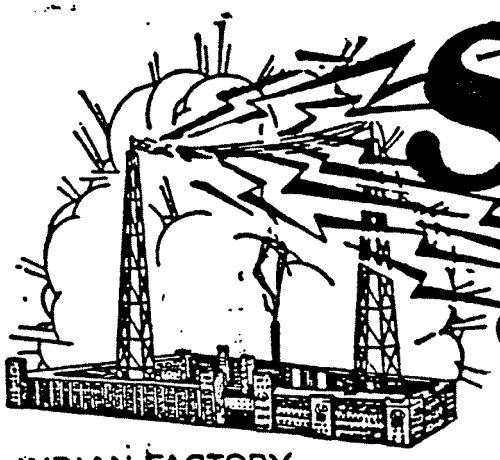
DIAN FACTORY

No. 92 INDIAN DEALER
August 14, 1939

JUNIOR SCOUT PISTONS AND HEADS

In order to have the efficiency as high as possible in this little motor, the compression ratio has been raised and in doing so, the piston heads came flush with the top of the cylinder, leaving the thickness of the gasket between piston head and cylinder head, for carbon space. Oftentimes in breaking in these motors at slower speeds, carbon will form on top of the piston and on the cylinder head, building up to the extent of where piston head will hit the cylinder head. When this happens, there will be a noticeable knock in one or both cylinders. This makes it necessary to remove the cylinder heads and clean the carbon out, and the knock will disappear.

INDIAN MOTOCYCLE COMPANY
Erle Armstrong
Service Engineer



Service Shots

FOR Indian Dealers

No. 93
August 14, 1939

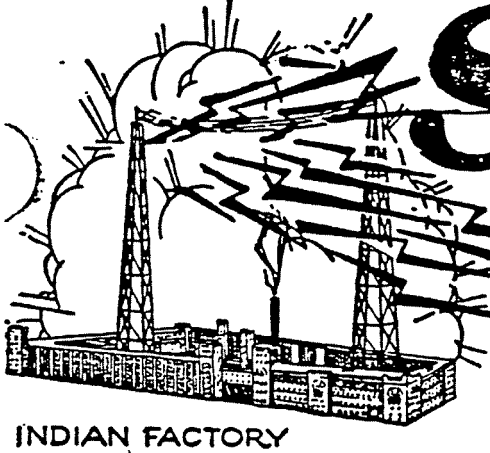
JUNIOR SCOUT MOTOR SPROCKET DRIVE SHAFT AND CRANKCASE BUSHINGS

The motor sprocket and flywheel main drive shaft is fitted to the crankcase bronze bushing with .002 to .0025 clearance to allow for the proper lubrication.

In the breaking in of a new Junior Scout oftentimes, on account of improper lubrication or using the wrong make of oil, this bearing and bushing seizes causing it to turn in the crankcase and wearing the crankcase bearing hole out of round, making it necessary to have a special bushing made.

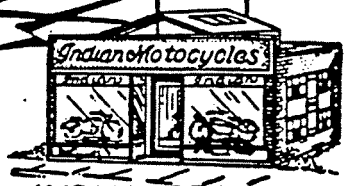
Due to this condition, we advise pinning the bushing to the crankcase by drilling two holes thru the flange of the bushing into the crankcase and using two small pins so that should this bearing run shy of oil, the bushing will not revolve in the motor base. Also, we advise cutting an oil groove from the oil hole in the outside of the bearing back towards the inside of the motor base, which will allow the oil to travel the entire length of this bearing.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers



No. 94
August 14, 1939

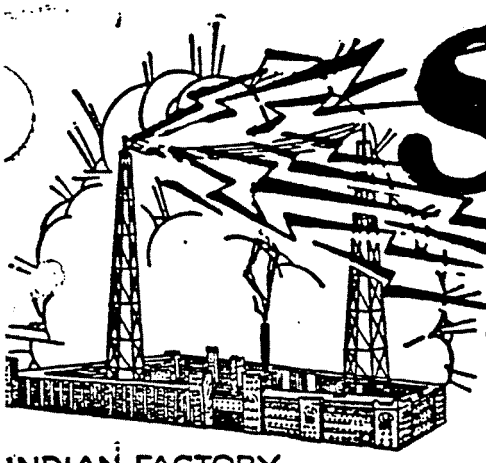
INTAKE PUSH RODS MODEL 330

A groove 1/32 deep and 1/16 wide is being ground lengthwise on the front and rear intake valve crankcase push rods. This is being done to increase the oiling of the intake valve and guide.

When servicing a 339 74, if the intake push rods do not carry the groove, it is a very simple and easy operation to grind a groove the length of the push rod with an ordinary grinding wheel, using the sharp corner, which will no doubt grind a wider groove, but it will not have to be so deep. This operation will tend to make the intake valves quieter at the tappet clearance, and eliminate intake valve stem and valve guide wear.

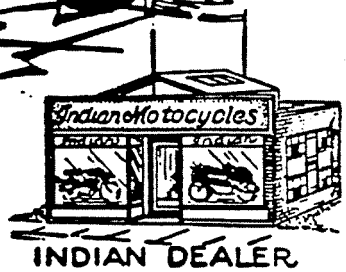
INDIAN MOTOCYCLE COMPANY
Erle Armstrong
Service Engineer

11.



Service Shots

FOR Indian Dealers



INDIAN FACTORY

INDIAN DEALER

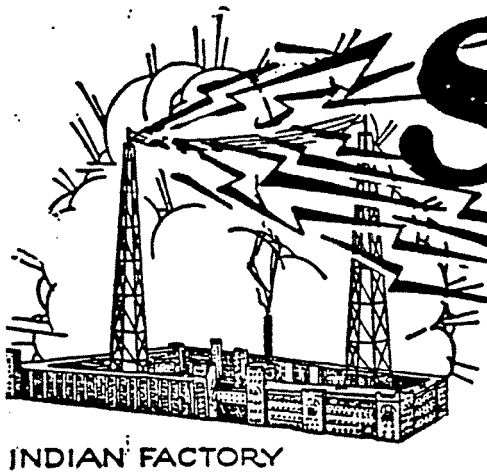
No. 95

TIRE PRESSURE AND WHEEL BALANCE

All Firestone motorcycle tires, sold thru the Firestone trade sales for replacement purposes, will carry a red dot on the bead of the tire which should be placed at the valve stem of the tube when assembling tire to the rim. In doing this, it will give the wheel a better balance and will help to eliminate front wheel tread scuff and handling at high speed.

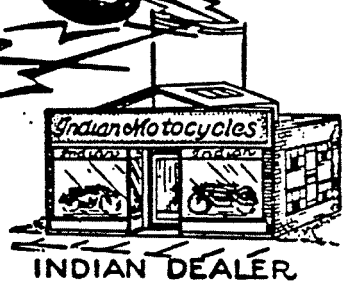
TIRE PRESSURES

Low tire pressures cause weaving and wobbling of a machine at the higher speeds. Most generally it starts in at about 50 miles per hour. This condition has been very noticeable in Police Departments when on regular patrol duty riding at speeds of 30 to 35 and 40 miles per hour, they are prone to ride with under-inflated tires, believing that it gives them an easier ride, and when an emergency call arises, and they are required to ride at higher speeds, they find their machines becoming unmanageable. In every case that has been investigated, it has been found that the tires were under-inflated, and with direct tests it has proven that if the tires are brought up



Service Shots

FOR Indian Dealers



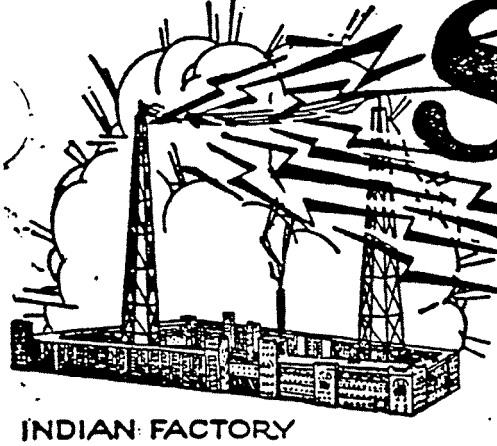
No. 96
August 14, 1939

Our 1939 gas tank caps contain a needle valve with a coil spring to hold it in position. In some cases, this spring may be a little too strong, causing a pressure to build up in the tank and the carburetor to flood, also interfering with the flow of gasoline in the carburetor because of no vent in the cap.

You may find it necessary to hook out a coil of this spring thru the two holes in the bottom of the cap. Cutting off a coil to a coil and a half will allow the needle valve to seat very lightly or a short distance away from the gas cap vent hole, allowing a free flow of gas and eliminating the tank pressure. This condition has been interfering with high speed performance on motors.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 97

439 MAGNETOS

The ground wire running from the breaker bar assembly to the body of the magneto to insure a positive ground, and the primary lead wire from the breaker bar assembly to the condenser also attached to the magneto cutout post and running to the primary coil, has been lengthened out sufficiently that a large coil can be assembled between condenser and where the wire attaches on to the breaker bar.

Because of the action of the breaker bar assembly retarding and advancing spark, this wire in time would crystallize and break. The part number of these wires from the Edison catalog are as follows:

Ground wire - 6946 - new type

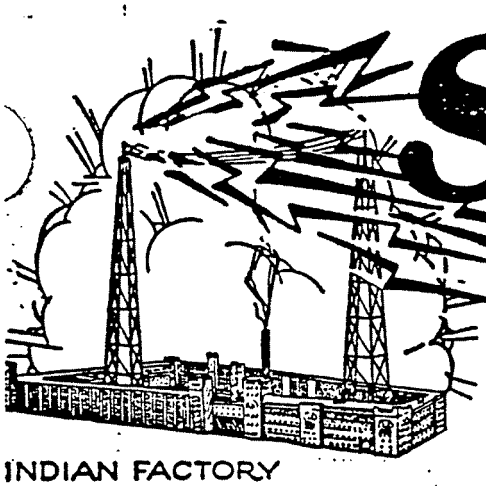
Primary lead wire - 5932 - new type

These wires are available by contacting Edison Splitdorf Corporation, West Orange, New Jersey.

INDIAN MOTOCYCLE COMPANY

Erle Armstrong

Service Engineer



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

No. 98
August 14, 1939

DRY PUSH RODS, TAPPETS AND VALVE ASSEMBLY 339

The crankcase vacuum plays a very important part in the lubrication of the assembly during the breaking in period of a motor and in City Police Departments, where the speeds are very seldom over 45 miles per hour, the crankcase vacuum is at its highest. This condition tends to drain the oil from the cam case into the crankcase, causing a drying up of the valve assembly.

This condition can be satisfactorily overcome by drilling a 1/8" hole in the crankcase breather disc. This will reduce the crankcase vacuum and will allow a dampness of oil to accumulate around the valve stems, tappets and push rods.

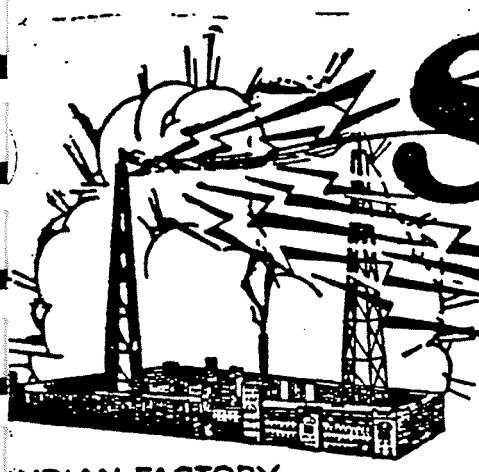
The following is a brief explanation of crankcase pressure and crankcase vacuum: Front and rear pistons travel up and down at the same time. On the downward stroke of the two pistons the breather valve opens and this causes the air pressure in the crankcase to pass out thru the breather valve. When the two pistons start up, this breather valve closes, and very little air is drawn back into the motor base. This creates a vacuum in the motor base and tends to draft the oil away from the push rods. At higher speed, the volume of air in the crankcase tends to equalize itself with outside atmospheric pressure. At the point when this happens the oil has a chance to travel from the crankcase to the cam case and up to the push rods and into the valve assembly. Now, this condition is controlled entirely by the breather valve.

Until such a time as the cylinder and piston rings are worn to the extent of allowing a blowby on compression and firing strokes, at this time is when a pressure builds in the motor base and tends to blow the oil out thru both the breather and the valve mechanism and this oil blowing condition will be at all speeds of the motor. This is the warning that should tell you that it is time to service pistons and cylinders and rings. Oftentimes, piston rings alone will overcome this condition.

Now, it is desirable to have a certain amount of vacuum in the base at all times but where a machine is operated continually at the lower speeds, it will be necessary to reduce this vacuum by drilling the crankcase breather disc.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT

15.



Service Shots

FOR Indian Dealers

No. 99
October 18, 1939

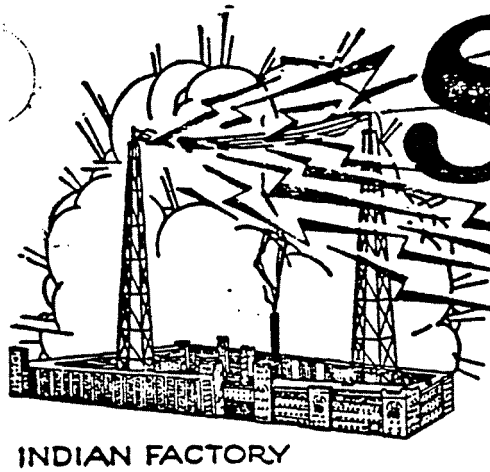
CARBURETOR FLOAT LEVER AND NEEDLE VALVE ADJUSTMENT

If too much play has developed between the three fingers of the float lever and the ball on top of float needle, a lean carburetor mixture will result, due to lack of proper amount of gas in the bowl. The needle valve does not open far enough to keep the bowl properly filled at all times.

Such a lean mixture will cause quick overheating, ruination of spark plugs, misfiring, spitting back thru carburetor, hard starting, and a very much lowered top speed. To correct this trouble, remove the float assembly from the bowl when making all adjustments, bend the top finger down closer to the two lower fingers. Have very little play but do not pinch. Adjust float level in bowl by bending lever at float end. The correct height is 11/32 from top of bowl cover with valve on seat.

We recommend when making this adjustment to either use a new set of spark plugs or a thorough cleaning of the old set.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 100
November 13, 1939

NECESSITY FOR CLEANING INDIAN 4 OIL FILTER SCREEN AND CRANKCASE

To eliminate the possibility of burning out a bearing and oil pressure on Indian 4 models from falling off at high speeds, it is advisable to THOROUGHLY clean the crankcase and oil filter screen.

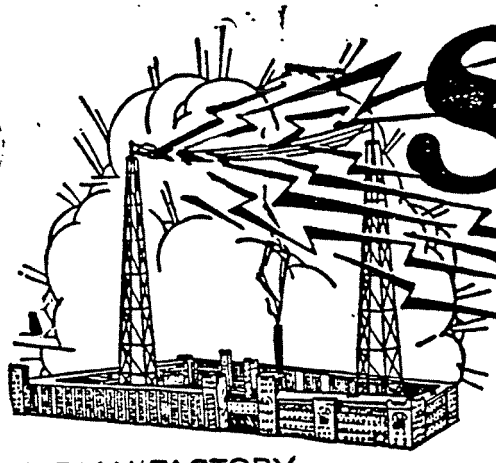
1. Drain crankcase.
2. Hold pressure spray gun at crankcase drain hole and spray thoroughly. (Either gasoline or kerosene may be used in pressure gun.)
3. Put one quart gasoline into engine thru oil filler cap and allow gasoline to drain. (Leave plug off long enough for gasoline in base to evaporate. Air gun will help dry up gas.) DO NOT RUN MOTOR.

This will clear all residue out from the oil filter screen and allow oil to flow freely, thus eliminating falling off of oil pressure at the gauge at high speeds.

If screen is not kept clean, bearing wear will result and may lead to completely burning out connecting rod bearings.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 104
December 26, 1939

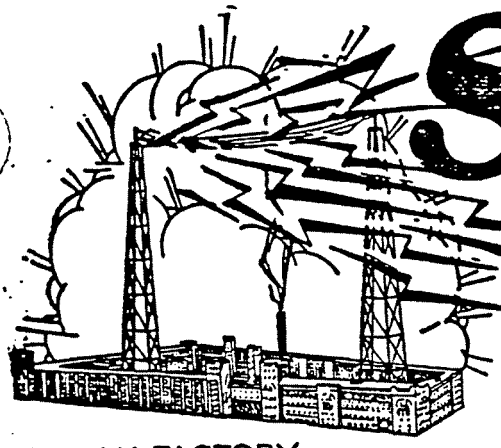
1939-1940 INDIAN FOUR PISTON RING ASSEMBLY

Indian Four pistons are fitted with two 1/16 piston rings in the two top ring grooves. The two lower ring grooves are fitted with 3/32" bevel rings, the bevel on ring pointing to top of piston. This gives an oil scraping effect on cylinder wall, returning surplus oil through the holes in piston just under each bevel ring.

The use of a piston ring compressor eliminates possible oil ring breakage when assembling cylinders.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

December 26, 1939 No. 105

ALIGNMENT OF MACHINE TO SIDE CAR ON LEVEL FLOOR

First: Tire pressures must be 25 lbs. rear tire, 20 lbs. front tire, 20 lbs. side car tire.

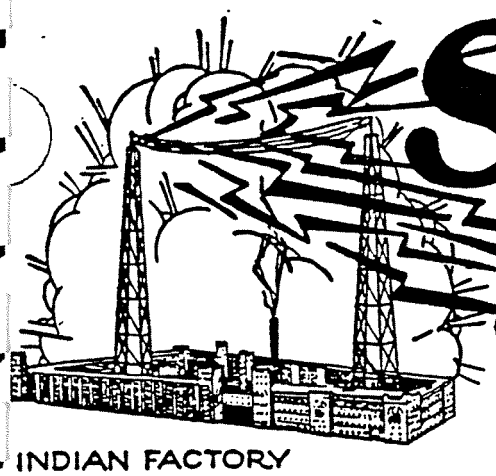
Second: Machine and side car should be on level surface.

Third: Side car assembled to motorcycle - all connections tight, except side car to motorcycle brace. The brace clamps on side car frame left loose enough to move. Now, lean motorcycle away from side car about two to three degrees from proper steering. Tighten clamps.

Should machine be set straight up and down with side car, there will be a drag to the right noticeable on handlebars while operating. Machine will operate in straight line on level road with proper alignment.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

Number 106
March 21, 1940

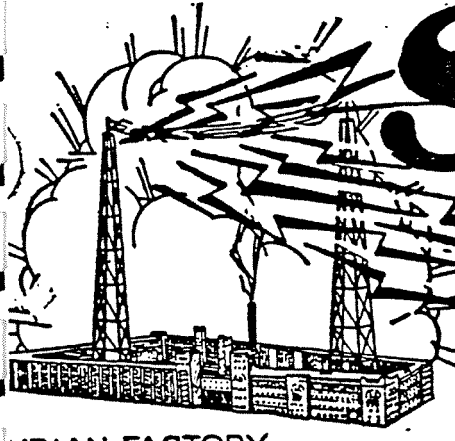
ALIGNMENT OF GENERATOR ON MODELS 340 TO PREVENT EXCESSIVE BELT WEAR

Premature and excessive wearing of the generator belt is caused by the pulleys of the generator and generator drive not being in proper alignment.

To remedy this condition, we suggest that you remove the generator guard and check this alignment.

If they do not line up, loosen the clamp around the generator and slide the generator to the right or left until the pulley on the generator lines up with the pulley on the drive.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 109 INDIAN DEALER
March 21, 1940

INSTRUCTIONS FOR REFINISHING "T" SLOT, CAM GROUND, SEMI-FINISHED PISTONS

At the factory, pistons are ground to a "Van Norman 'E' cam contour".

In refinishing semi-finished pistons in your own shop, use this same countour or equal.

Piston clearance in the cylinder should be five thousandths (.005) smaller than the bore of the cylinder. Clearance measurement should be made at the skirt on the thrust face sides of the piston. The thrust face sides are the sides opposite the wrist pin sides, or what might be called front and back.

Clearance measurement on the wrist pin sides should be at least thirteen thousandths (.013).

(For Illustration)

If the cylinder bore is 3.290 --

(a) The piston dimension across the thrust faces at the skirt should be 3.285.

(b) This will give a thrust face clearance of .005.

(c) The piston dimension across the wrist pin sides at the skirt should be 3.277.

(d) This will give the piston a cylinder clearance of .013 on the wrist pin sides.

IMPORTANT

When pistons are ground, be sure to have the lower edge of the skirt beveled. If the piston is not beveled and is left with a sharp edge, it will have a tendency to scrape the oil from the cylinder wall.

On unfinished pistons supplied from the factory, the "T" slot is not cut all the way through. Be sure to cut this through.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT

Service Shots

FOR Indian Dealers

Number 111
March 28, 1940

TO REMOVE THE SPRING FRAME ASSEMBLY FROM THE MOTORCYCLE
(refer to illustration)

Remove the rear wheel and brake drum assembly.

Directly behind the top frame casting is a very small lock screw, counter-sunk into the frame casting itself. Remove this screw. This allows the uppermost chrome dust cover to be slid down out of the way.

Remove the one inch nuts (A) at the top and bottom of the spring assembly. Alemite fittings may be left in place.

Loosen the pinch bolt (B) on the lower frame casting.

From underneath the lower casting, unscrew the retaining cup (I).

Now get a piece of 2" hollow steel tubing with a 7/8" hole. Slide this tube up over the lower end of the shaft (F) that runs from the top to the bottom of the spring unit.

Using the nut (A) that you took off previously, screw this back on and tighten against the steel tubing placed on the shaft. This will draw shaft (F) down so that the complete assembly may be taken from the frame.

TO REMOVE THE SPRINGS FROM THE SLIPPER CYLINDER

The unit in which the spring action is housed (E) is referred to as the slipper cylinder. The shaft (F) is known as the slipper spindle. The nuts on top and bottom (A) are correctly known as the slipper spindle bolts.

Remove the 2" piece of steel tubing that you used to compress the springs so that the unit could be removed from the machine.

Remove the lock ring (C) on the top end of the cylinder.

Compress the top spring (G) by placing the cylinder in an arbor press or large vice. This compresses spring (G) so that cap (D) may be unscrewed.

With the cylinder held securely in the vice or arbor press, remove cap (D) from the cylinder. The shaft and spring assembly may now be removed. Use extreme caution in releasing the cylinder from the vice or arbor press because the springs are under very heavy pressure.

The top spring (G) is known as the recoil spring and is the shorter of the two. The bottom spring (H) is known as the load spring and is the longer of the two.

Spindle shaft (F) should work freely in the slipper cylinder bushings.

The taper end is the "Top".

The 7/16 shoulder end of the shaft is the "Bottom".

TO ASSEMBLE THE SPRING FRAME UNIT
(refer to illustration)

Grease the springs.

Place the longest spring (H) with the large end toward the bottom into the slipper cylinder.

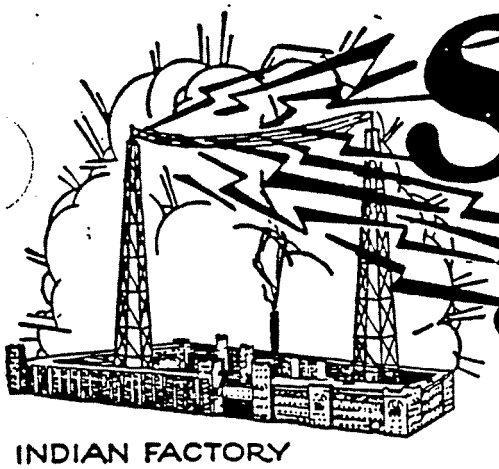
Take the slipper spindle shaft (F) and with the end with the 7/16 shoulder toward the bottom, slip it into the cylinder thru the spring.

Place the short spring (G) into the cylinder with the large end toward the "top".

Put cylinder cap (D) on the shaft. Place the entire unit in an arbor press or large vice and compress the springs in the cylinder so that cap (D) can be screwed into place. Screw cap (D) in until the slots in the cap line up with the cylinder casing (E).

Replace the lock ring.

Place the top chrome cover in position.



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

No. 113
May 1, 1940

CARE OF BATTERIES

In some cases batteries are left in new or used machines which are stored in display rooms without any precaution taken to keep them charged, nor are they charged when the machines are delivered to customers, with the result that early battery failures have resulted.

If necessary precautions are not taken, the batteries in stored machines will be ruined in a very short time as the plates become hard and sulphated. Sulphation occurs quickly in warm weather and a discharged battery will freeze quickly in cold weather. Freezing will destroy it. The Indian Motocycle Company will not, and could not be expected to, replace or repair a battery which has been damaged by failure to keep properly charged while in storage.

Therefore, you should be sure that each machine going on the display floor carries a fully charged battery, and then at least every 30 days, each battery should again be checked for condition of charge, and if the reading is 1.250 specific gravity or below, it must be recharged.

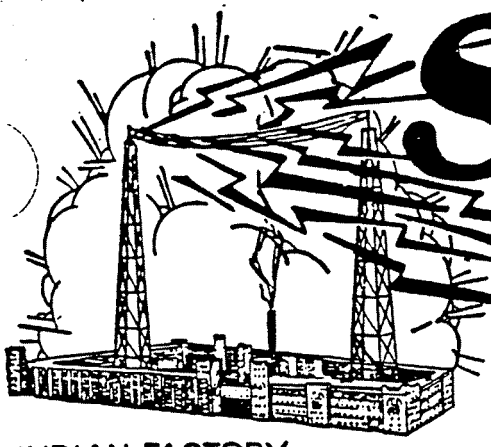
A still better procedure is to remove the battery from all display machine units and, if you do not have your own battery service facilities, arrange with a local battery service station to properly store and care for these removed units until the machine is sold and the battery replaced.

Experience indicates that the removal of batteries and the subsequent care is the best procedure.

This Service Shot should be followed carefully right now because with warmer weather, batteries discharge much faster and there is more danger from sulphation if not properly cared for.

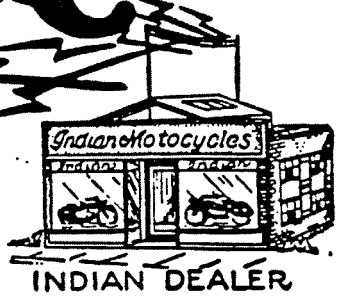
INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers



Number 114
May 6, 1940

HOW TO MAKE A VACUUM GAUGE FOR SHOP TESTING MOTORS

Measurements of crankcase vacuum in twin cylinder engines will often give a quick check on condition of piston rings, operation of breather, and proper operation of sump valves. Each repair shop should have a vacuum gauge for this purpose. One can be made as follows:

Purchase two (2) three foot lengths of 5/16 O.D. boiler glass tubing having a one eighth or 5/32 dia. hole in center. These may be obtained at any plumbing supply shop. Fasten these on a vertical clean wooden panel or board keeping the tubes about 1-3/4" apart. (See cut)

Use heavy wall (1/8") rubber tubing (1/4" I.D.) to connect the two lower ends together and support this rubber tubing at the bottom with a wood block cut out to fit the curve of the tubing.

Use another length of rubber tubing to fasten to the top of one of the glass tubes. This tube should be long enough to reach from the gauge to the crankcase of the motorcycle. On the crankcase end of the rubber tube, use about 6" of 5/16" O.D. copper tube and solder on a cone and nut as shown. Slip the rubber tube over the copper tube. Use an elbow at the crankcase.

Purchase enough mercury to fill both glass tubes about 1/2 way up. After filling, mark on the board a line showing the mercury level at 0 and then mark inches each way from zero up and down. Dividing the inches into quarter inches will help the readings. The board may be marked before filling and then filled to the zero point if you wish.

After completing the gauge, remove upper crankcase oil level screw. Connect rubber tubing at elbow. Start motor up. The vacuum in the crankcase should lift mercury up on one side and the opposite side will be down by the same amount. If your gauge has no air leaks, it should be used as follows:

1 - Motors in good condition will show a vacuum in crankcase throughout the range.

2 - A poor working or badly installed breather valve will destroy the vacuum and show a pressure (mercury on pressure will go down on motor side and up on opposite side.).

3 - Bad piston rings will show a slight vacuum at low speeds and will break into a pressure at about half throttle.

4 - A motor in good condition will never show a pressure.

5 - A poorly working sump valve will cut down the vacuum and if motor is dirty or running hot, may show a pressure.

6 - A bad seal between motor and primary on 74 cu. in. motors will show a vacuum in primary.

7 - Remember - Cut down flywheels, holes in breather discs, slotted push rods, all reduce vacuum.

8 - Experience in the use of the gauge will teach you what to expect for motors in different conditions.

9 - This gauge is not for use on 4 cylinder motors.

Service Shots

FOR Indian Dealers

No. 115
May 24, 1940

CARE OF UNFILLED OR DRY BATTERIES

It is very important that Unfilled or Dry Batteries used for warehouse machines receive proper care, otherwise sulphation will set in and the battery will render poor service or will completely fail.

With each dry battery is an instruction card. Each card is dated. Dry batteries must be filled and charged according to instructions before the month and year stamped on the card. Batteries are dated four to six months ahead as shipped from the factory. The Indian Motocycle Company cannot guarantee batteries that have been allowed to stand a longer time.

Instructions on this card are as follows:--

Do not remove the filler plugs until ready to fill and charge.

Do not use constant potential to initial charge this battery.

The filling electrolyte is a solution of pure sulphuric acid and pure water having a specific gravity as shown in table below.

1. Unscrew filler plugs.
2. Press down firmly with finger on red button of cell being filled in order to close vent and prevent overfilling.
3. While pressing on button, add electrolyte until the filling well is nearly full.
4. Remove finger to allow electrolyte to fall to correct level. Do the same on other two cells.
5. Replace filler plugs.
6. Allow battery to stand not less than 12 hours nor more than 24 hours so electrolyte will cool and completely saturate plates.

7. After standing, restore electrolyte level by adding distilled or approved water to the cells while pressing on red button as outlined above.

8. Replace and tighten filler plugs in filler well.

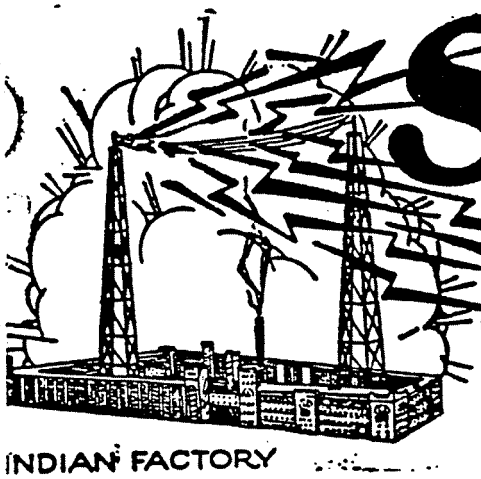
9. Charge battery at 1.5 amperes until specific gravity stops rising. This will require approximately 84 hours. If temperature of electrolyte exceeds temperature shown on tables, reduce charging rate and increase time proportionately.

10. If necessary to restore electrolyte level during charge, use only approved water.

11. After completion of charge, the specific gravity of the electrolyte should be within the limits shown in table. If not, adjust by removing some solution and replacing with approved water or electrolyte as required.

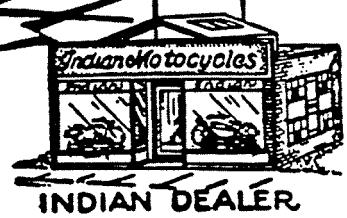
	Temperate Climate	Tropical Climate
Filling Gravity	1.345 sp. gr. (37° Be.)	1.245 sp. gr. (28.5° Be.)
Max. Temperature	100° F. (43° C.)	125° F. (52° C.)
Final Gravity	1.270-1.290 (31°-33° Be.)	1.200-1.225 (24°-26.5° Be.)

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers



No. 117
June 21, 1940

OIL FILTERS

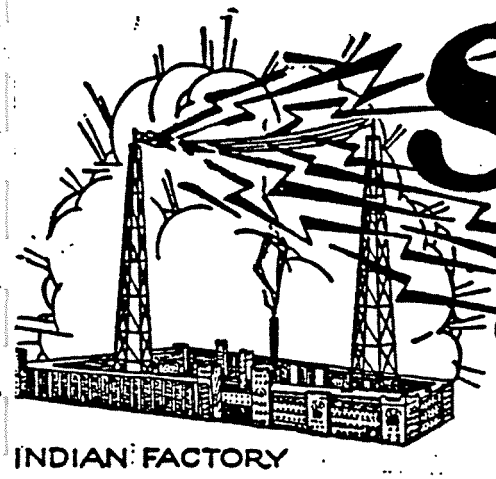
All oil filters used as standard equipment on 1940 74 and 45 models are so constructed that if care is not taken at installation, it is possible to install them backwards.

One end of the filter, in raised letters, is marked "INLET". This inlet end must be attached to the oil pump line.

We would suggest that all machines entering your shop be checked to see that the filter is properly installed.

Filters installed backwards will slow up the return of oil to the tank and, in some cases, blow apart the filter as well as cause an accumulation of materials on the sump-screen and in the oil pump.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 118
November 6, 1940

NEW 1941 PISTONS

The 1941 pistons such as used in Models 341 and 641 will be sent out on all service parts orders to replace 1938, '39, and '40 four ring pistons.

For those who wish to change motor balance when installing new pistons, the following information will be helpful.

No. 1. Model 341 (3-1/4") piston is four ounces lighter than previous pistons.

No. 2. Model 641 (2-7/8") piston is two ounces lighter than previous pistons.

No. 3. The balance being used by the factory at the present time is one piston complete with rings, piston pins, and lock rings to either front or rear connecting rods.

No. 4. Rebalancing is not absolutely necessary with the new pistons. However, when motors are being completely overhauled, rebalancing is recommended.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT

Service Shots

FOR Indian Dealers

No. 120
November 7, 1940

TIMING TWIN MOTORS

When servicing oil pumps on battery ignition motors or primary drive and transmission on 45 magneto ignition motors, it becomes necessary to retime ignition.

To aid in the retiming of motors, a mark is stamped on the left flywheel. This mark is a straight vertical line (I) which appears in the center of the top oil level screw hole in the left crankcase. This mark is not too pronounced and a good light at thescrew hole is necessary.

1. Remove the top oil lever screw and spark plugs from motor.

2. Turn over motor until rear cylinder inlet valve opens and closes with exhaust valve also closed and both tappets free. Then turn motor until front cylinder exhaust valve starts to open.

3. After both rear cylinder valves are closed and front cylinder exhaust valve is opening, watch for flywheel marks.

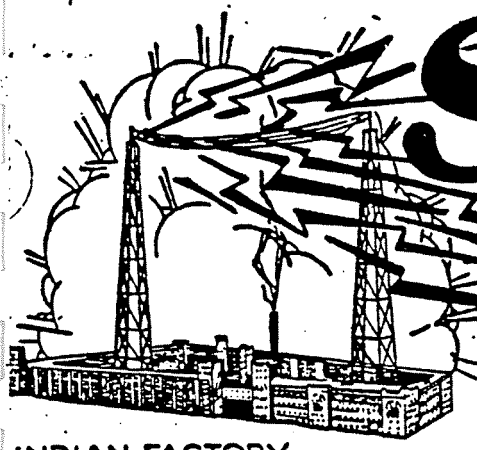
4. When the mark appears in oil level hole, the rear piston is coming up on compression stroke and by setting points so that they are just breaking with full advanced spark, the motor will be set at original factory timing.

Magneto equipped 45 Sport Scout motors are timed as described above, however, the magneto must be timed to the motor.

After primary three row chains and magneto mounting is in place, the magneto gear must be set with the mark which appears on the magneto gear and the mark located at the second screw boss on the front of the magneto gear housing matching. If the flywheel mark is showing and the magneto gear mark set with the mark on the magneto housing, the motor is properly timed.

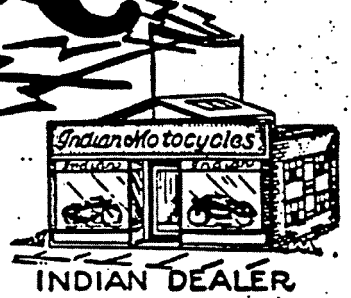
INDIAN MOTOCYCLE COMPANY

SERVICE. DEPT.



Service Shots

FOR Indian Dealers



January 10, 1941 No. 121

INSTALLATION OF 5.00 x 16 TIRES

We have received reports from the field that trouble has been experienced with the installing of the large 16 x 5.00 tires, when repairs have been made or new tires installed. The following information we believe will be helpful, and will make the installation much easier for you.

1. The rim should be thoroughly clean and free from dirt or rust.

2. The tire bead should be also thoroughly clean and care should be taken that particles of gravel are not lodged in the tire beading if the tire has previously been in service.

3. A solution of Murphy's Oil Soap should be applied to the tire beading. This solution should consist of 50% oil soap and 50% water, and a thin coat should cover the bead of the tire only, extending about 1" up the side walls.

4. After the tire is mounted on the rim, it should be worked back and forth so that it sits entirely loose in the rim, and the beading not wedged in any one place.

5. Over-inflate the tire to 35 pound pressure. This will draw the bead of the tire into the rim properly.

6. The tire may then be deflated to the desired pressure ready for use.

The grip of the tire bead on the rim has been changed on the 16 x 5.00 tires and wheels to prevent the oversize tire from creeping on the rim. Therefore, this extra precaution is necessary in installing, as trouble with tire wobble will be experienced if these tires are installed as you have been accustomed to installing the smaller drop center tires.

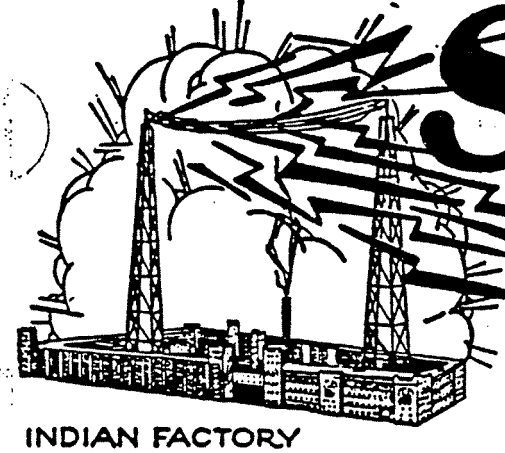
The Murphy Oil Soap can be purchased from any auto parts house, or may be obtained direct from the Phoenix Oil Company of Cleveland, Ohio.

Another hint which will help in installing the larger tires is to make up a tube about 4 inches long. This tube can be made of 3/8" stock, and one end should be tapped out to 5/16 x 32 thread.

January 10, 1941 No. 121

This short piece of tube should be attached to the valve stem and it will greatly help installation, as this extension to the valve stem will protrude through the hole in the rim and keep the valve in position until the tire is completely installed.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



INDIAN FACTORY

Service Shots

FOR Indian Dealers

INDIAN DEALER

Number 122
May 5, 1941

It has been brought to our attention that batteries in the 1941 machine quite frequently have boiled over. This condition is brought about by the battery being overcharged due to the high charging rate of the generator and is not due to any temperature condition.

When the machines leave the factory, the generator is set so that the charging rate is in balance with the amperage load drawn through the ignition and driving lights.

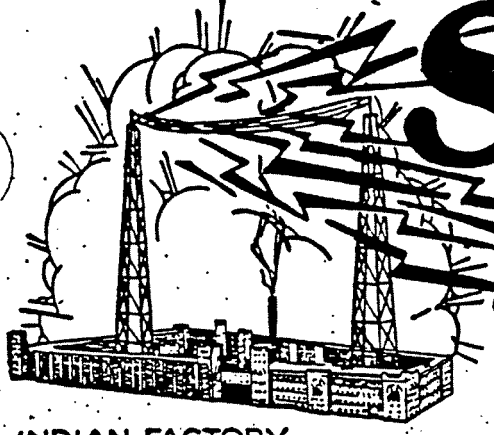
In some cases where machines are used for daylight driving only, this charging rate is too high. The charging capacity of the Auto-Lite generator, which is used as standard equipment is more than sufficient to carry ignition and standard equipment lighting continuously without drawing on the battery. Therefore generators should be adjusted to suit the particular driving condition.

Where a machine is used for daylight driving only, the generator should be set to charge approximately 4 amps which is ½ of the charging rate adjusted at the factory before delivery.

It should only be necessary to make adjustments in the Spring and Fall when daylight hours change enough to warrant a change in driving conditions.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



INDIAN FACTORY

Service Shots

FOR Indian Dealers

INDIAN DEALER

Number 126
August 5, 1941

1941 MOTORS WET SUMPING

By wet sumping, we mean that too much oil is carried in the crankcase, which has been found to be caused by one or more of the three following conditions, which we have found to exist in some of the 1941 machines.

1. The sump valve pick-up tube can be installed in the motor in such a way that the opening at the end of the tube is too close to the bottom of the crankcase. To correct this condition, remove the oil level screw from the left half crankcase and insert a thin screwdriver or any long bent instrument through this screw hole and pry up on the end of the sump pick-up tube until it is about 1/8 to 3/16 above floor of crankcase.

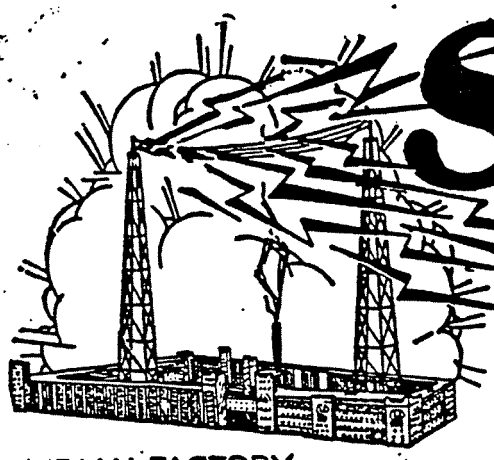
   If you should not be able to raise this tube sufficiently, it will then be necessary to remove the sump valve and cut off a portion of the tube at the bend so that there is a full opening.

   By this tube being too close to the crankcase at the opening, it of course restricts the amount of oil which can be picked up through the sump valve, causing the motor to overload in speed above 50 miles per hour.

2. It has also been found that the tube which is on the inside of the sump housing is too long in some cases, which also restricts the flow of oil. There should be 3/16 of an inch clearance between the end of the tube in the sump housing and the bottom of the housing itself.

   If there is not this clearance, a piece should be cut off from the end of this tube.

3. The surface of the sump valve disc may be found to be uneven, which of course will not give proper seating on the back plate. If this condition exists, regrind the disc by using fine valve grinding compound. This may be done by placing the disc, with the compound, on a surface plate or sheet of plate glass, revolving the disc with the index finger until it has a smooth surface.



Service Shots

FOR Indian Dealers

No. 127
August 7, 1941

RECOMMENDATIONS FOR CARE AND LUBRICATION OF DUCKWORTH REAR DRIVE MOTORCYCLE CHAINS

Rear drive motorcycle chains operating most of the time at high speed provide a very difficult problem in lubricating efficiency.

The chains operating in the open without means of providing enclosed or automatic lubrication collect sand, dust and grit which work their way into the chain joints, causing them to become stiff and to wear excessively.

It is just as important to properly lubricate the bearings of a motorcycle chain as it is to lubricate the bearings on any other integral part of the motorcycle. If the pins, bushings and rollers of the chain are allowed to become bone dry -- excessive elongation, "stiff joints", and uneven wear will result. If dirt and other foreign matter is allowed to stay upon the chain for any period of time, they will eventually work their way into the precision made chain bearings, scoring the hardened surfaces and doing irreparable damage to the chain.

Smearing non fluid grease on the surface of chain is a doubtful lubricating expedient due to the fact that it does not penetrate into the chain bearings, and acts as a catch-all for road dust and debris.

We recommend that two methods of lubrication be used on rear drive motorcycle chains used, as follows:-

PERIODIC LUBRICATION AT EVERY 250 MILES

(a) Leave chain on motorcycle.

(b) Jack up machine and clean off surface sand and dirt with brush or waste.

(c) Revolve chain and pour kerosene on slack side, preferably with a spout can. If spout can is not obtainable, use waste saturated in kerosene.

(d) Start motor and revolve chain slowly until kerosene is dispelled.

(e) Pour engine oil (preferably #10 or #20) on slack side of chain. Care should be used when applying the oil so that it penetrates between the inside and outside chain plates inasmuch as it is more easily carried to the pin in this manner.

PERIODIC LUBRICATION AT EVERY 1000 MILES
(TO BE MADE IN ADDITION TO THE 250 MILE LUBRICATION DESCRIBED ABOVE)

(a) Take the used chain off the machine, putting it in a shallow pan with a piece of wire netting or substitute in the bottom of the pan to keep the chain about 1/2" above the bottom. Cover the chain with kerosene, and soak thoroughly. When the dirt and old oil are dissolved, shake the chain well in the kerosene and then clean it, inspecting every joint, making sure they are free from dirt and flexible.

(b) Immerse the chain in a pan of hot grease, heated to a consistency of ordinary light cylinder oil. Allow the chain to soak in this mixture for a short time, keeping the grease hot if possible, and moving the chain so that the grease will reach all inside parts of the chain.

Take the chain out, wiping off all the surplus oil from surface of chain.

Note: When conditions render it impossible to immerse chain in the melted grease, substitute immersion in pan containing #10 or #20 fluid oil.

(c) Install chain back on motorcycle. If this procedure is followed, a hard lubricating material will be incorporated in all vital wearing parts of the chain after it is dried.

Less road dirt will be picked up by the apparently dry, yet well lubricated chain, and longer life and greater satisfaction will be obtained.

Every Duckworth motorcycle chain leaving our factory after coming from the Assembly Department is heated in a hot bath of grease as described above.

Reference:

The following references regarding proper grease for lubricating motorcycle chains as described above are intended to be descriptive but not restrictive. Many other fine products

Reference:

The following references regarding proper grease for lubricating motorcycle chains as described above are intended to be descriptive but not restrictive. Many other fine products are obtainable on the open market.

Non-Fluid Oil C-#10-12 grade manufactured by N.Y. & N.J. Lubricating Co., 292 Madison Ave., N. Y. City.

Grade "D" Petroleum grease manufactured by Atlantic Refining Company.

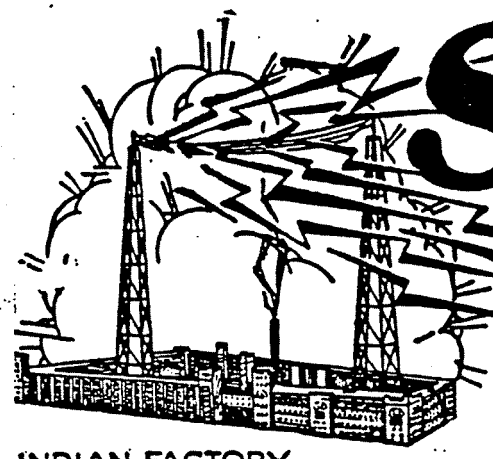
BALDWIN-DUCKWORTH

J. F. McCann
Chief Engineer
Springfield Plant

INDIAN MOTOCYCLE COMPANY

CER:B

C. E. Raymond
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

No. 130
September 10, 1941

MODELS 640 AND 641 FORK SHACKLE BOLTS

It has been found that when the set screws are tightened on the front fork shackles, the shackle tightens onto the threads of the fork bolt before it draws up on the diameter of the fork bolt itself. This has caused a number of fork bolts to break.

When a fork is being repaired or a fork bolt is being replaced, we would suggest that the threads in the shackles be relieved so that when the shackle is tightened up, it will tighten onto the bolt before it draws tight onto the bolt thread.

To do this, the shackles should be all removed from the machine and drawn together slightly with the set screw. A tap should be run thru the threads until they have become sufficiently relieved.

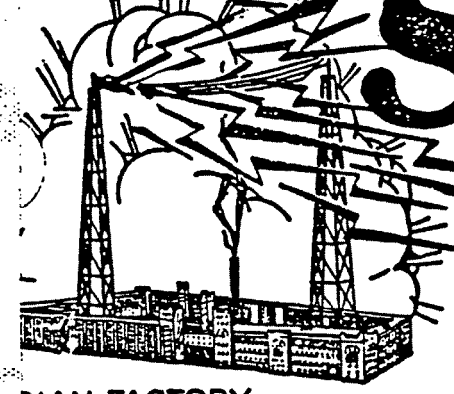
To determine the proper amount of clearance at the threads, saw off an old broken bolt and place it into the part of the shackle which does not have threads and tighten the shackle adjusting screw until the shackle is tight on the bolt. If the threaded end of another bolt can be screwed into this shackle, loosely with the fingers, the threads in the shackle then are sufficiently relieved so that when the shackle is tightened up in assembly, it will clamp fast to the bolt diameter and not hold onto the threaded part of the bolt.

If the shackle is allowed to hold fast to the threaded end of the bolt and be loose on the diameter of the bolt, when there is a strain placed on the fork it carries the whole load on the small threaded end of the bolt which oftentimes causes them to break.

A 7/16 x 20 tap should be used for tapping out the shackle threads and as the shackles are hardened, care should be taken in tapping, going over the threads several times, if necessary.

INDIAN MOTOCYCLE COMPANY

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

DIAN FACTORY

INDIAN DEALER

No. 133
November 14, 1941

SUBJECT: UNNECESSARY WHEEL BEARING FAILURES ON MODELS 640 & 641

Care must be used when assembling the bearings into the hubs to allow enough end play so that when the wheel is assembled into the frame and the center axle nuts are tightened, the bearings do not bind.

After the wheel has been completely assembled in the machine, it should be checked to see that it turns freely and if it binds, the wheel should be removed and the hollow axle nut backed off to give more bearing clearance.

If the bearings are too tight, they will not allow enough clearance for grease and a dry roller surface will result. This dry roller surface will cause a chipping of the tapered rollers and roughening of the bearing race surfaces, although the hubs may be well greased in assembly, bearing failure can result under these conditions.

Tightening of the center axle changes the clearance of the bearing cones due to the thread play between the hollow axle and the hollow axle nut. In other words, the hollow axle assembly may be fitted into the wheel freely before the complete assembly of the wheel has been made and by drawing up on the center axle it will change the cone adjustment.

When greasing a hub and bearings in assemblyeach part should be well coated with grease. Often times hubs are filled with grease and parts assembled. The pushing thru of the hollow axle will remove the grease from one side of the hub. It is therefore very essential that hubs are well packed from both sides and each bearing cone packed with grease before assembly.

A check should be made on all wheels to see that the bearings are free and that they are properly packed with grease which will eliminate bearing failures.

INDIAN MOTOCYCLE COMPANY
C. E. Raymond, Service Manager

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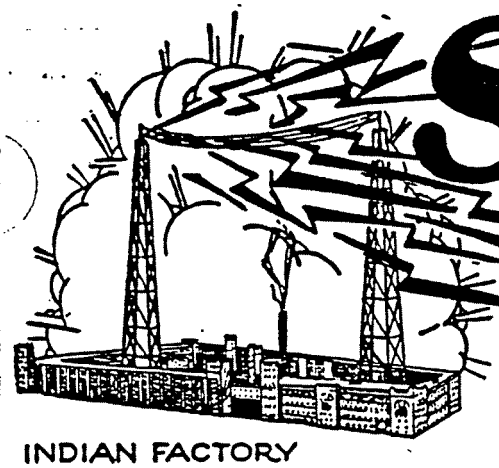


Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 135
January 14, 1942

INSTRUCTIONS FOR REMOVING REAR SPRING ASSEMBLY FROM LATE MODEL FRAMES

Right or left side.

Remove upper sleeve lock screw (10-32) located just ahead of fender anchor lug on inside of spring frame cluster at top. Slide sleeve down.

Remove one inch Hex head slipper spindle bolts with alemite fittings attached. Top and bottom of cylinder.

Loosen pinch bolt on lower frame bracket.

Screw out lower cup with sleeve attached (right thread).

Using a piece of tube 2" long 7/8 center hole, place tube on lower end of slipper spindle, using spindle bolt. Tighten the bolt to compress the spring in the cylinder. This allows the spindle to clear the top loop of the frame bracket. Remove the complete assembly from the frame.

REMOVE SPRINGS FROM SLIPPER CYLINDER

Remove lock ring on top end of cylinder nut. Compress spindle in cylinder (using arbor press or large vice) to release spring tension on cylinder cap. Remove cap (right thread).

Shaft and spring assembly may now be removed from slipper cylinder.

The short top springs are recoil springs. The long bottom springs are load springs.

Spindle shaft must work free in slipper cylinder bushings.

The taper end of spindle is top.

The 7/16 shoulder on end of spindle is bottom.

TO ASSEMBLE

Grease springs before assembling.

Place long spring (large end towards the bottom) in slipper cylinder.

Place shoulder end of spindle in slipper cylinder. Place short spring in slipper cylinder with large end of spring at top so will accept cylinder cap. Compress spring by placing in arbor press or large vice. Screw cylinder and spring cap nut down into cylinder until slot in cap and hole in cylinder line up. Replace spring lock ring in cylinder cap. Place top sleeve on slipper cylinder.

Compress spring by using spindle nut and tube sleeve tool on lower end of spindle shaft. Place assembly in frame. Place taper end of slipper spindle in top bracket of frame and assemble bolt with lock washer and alemite fitting. Remove lower spindle bolt and tube tool.

Slide upper sleeve into top cup on frame lining up hole for lock screw. Set screw into hole in sleeve to hold it in place, but not through into cylinder.

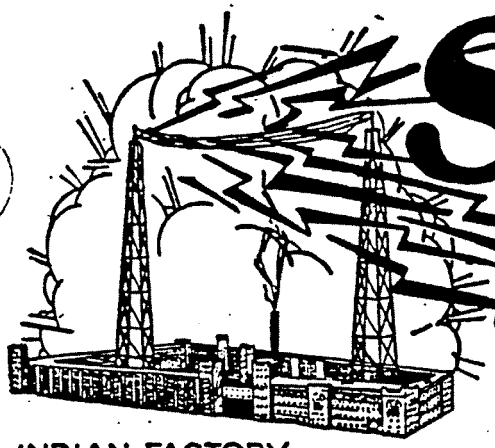
Screw lower cup with sleeve attached into lower frame lug (do not tighten). Now tighten top spindle bolt with alemite fitting attached.

When tightening lower cup into frame lug, tighten up to the shoulder of lower end of spincle (the end of spindle should be about flush with end of cup nut).

You may feel the cup strike spindle shoulder when screwing in place. Back out slightly and lock pinch bolt in frame lug. Then tighten top spindle bolt and lock washer into place.

Keep well greased during service with alemite grease.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

No. 141 April 11, 1944

FLYWHEEL ASSEMBLY

TIGHTENING OF PINION SHAFT, DRIVE SHAFT AND CRANKSHAFT INTO THE FLYWHEELS: (We recommend the use of a Torque Wrench.)

1. "Z" Metal Flywheels. (Marked "Z" on counterweight.) This metal allows the shaft nuts to be tightened to 100 foot pounds.

2. Cast Iron Flywheels. (Not marked "Z" on counterweight.) This metal allows the shaft nuts to be tightened to 75 foot pounds, or equivalent estimated pull, with flywheel wrench #23T286.

3. Tightening the nuts beyond this recommended pound pull will result in:

   A. Pulling the shafts too far into flywheel tapers and they will not stay tight.

   B. Distorting the ends of the shafts to the extent that the centers are slightly out of true in relation to the taper and finished bearing surfaces.

   C. Stripping of the threads on the shafts or nuts.

PRECAUTION TO BE TAKEN WHEN TRUING SHAFTS IN THE FLYWHEELS:

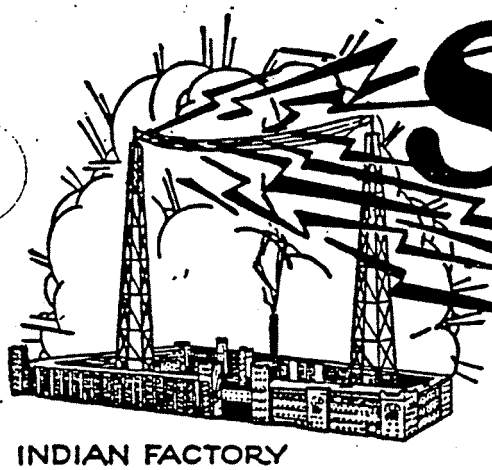
A. Do not strike the flywheels to align the shafts when they are set up on centers in the truing fixture or lathe.

B. Do not strike flywheels or shafts when there is a "run-out" of .005" or more. Remove the shaft from the flywheel and inspect for dirt, chips, or high place on key. Any irregularity must be removed to allow the shaft to pull up "true" against the flywheel taper.

C. Do not strike the oil hole end of the pinion shaft at any time. Due to the small diameter of this end of the pinion shaft, the center can be very easily damaged to the extent that it cannot be used to true up the flywheel assembly accurately.

Thie Service Shot is the result of comments received from mechanics who have had trouble when putting together flywheel assemblies.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

Number 142
June 12, 1944

PINION SHAFT AND SHIFTER FORK CRANK CHANGES

On the 741 engines starting with the numbers GDA-32037, the flywheel pinion shafts and pinion gears were changed from a straight shaft and gear press fit assembly to a tapered shaft and gear assembly.

The following parts were affected in this change:

OLD TYPE		NEW TYPE
39348 - Pinion Shaft	(1936 to 1941 - 45" - 30.50")	changed to 44287
20B104- Pinion Gear	(1936 to 1941 - 45" - 30.50")	" " 44288
37550 - Washer	(1936 to 1941 - All Twins)	" " 37855
37350 - Washer Nut	(1936 to 1941 - All Twins)	" " 37856

When the pinion shaft (44287) has to be replaced and you find that the new type isn't available, you may use the old type pinion shaft (39348) but will also have to use the old type pinion gear, washer and nut. The same proves true if it is necessary to replace the new type pinion gear and it is not available, in which case you would have to use the old type pinion shaft, washer and nut.

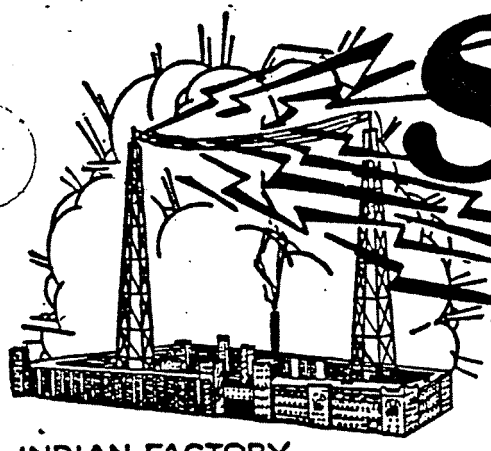
On 741 engines starting with numbers GDA-32037, the transmission shifter fork crank and shifter fork crank lever were changed from a key type shaft assembly to a serrated type shaft assembly.

The following parts were affected in this change:

KEY TYPE		SERRATED TYPE
44369 - Shifter Fork Crank	(741 models only)	changed to 44845
43824 - Shifter Fork Crank Lever	(741 models only)	" " 44846

When replacing either one of these parts, it will be necessary to mate together the two parts according to the type of shaft assemblies, using a key type lever with a key type crank and a serrated type lever with a serrated type crank.

INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

Number 143
August 28, 1944

GENERATOR BELT PART NO. 42603

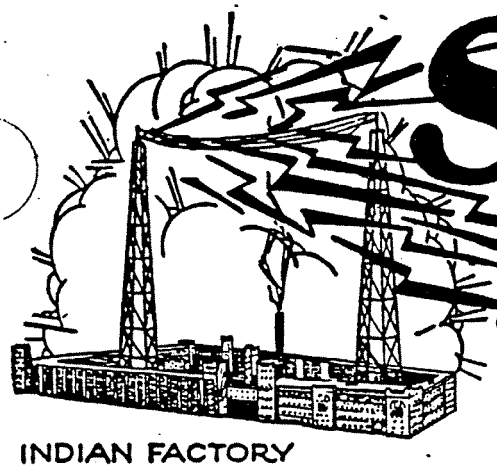
Because it was impossible for the belt manufacturers to supply us with the same belt we used on 340, 341, and 342 models, we are assembling on new 344 machines and supplying on parts orders a substitute belt (under the same part number) which is one inch smaller in circumference.

When this substitute belt is used on 340, 341, and 342 machines you will find that the generator bracket cannot be lowered enough to get the proper belt adjustment ($\frac{1}{2}$" movement up and down.). However, by cutting $\frac{1}{4}$" from the generator bracket adjusting screw, it can be turned farther into the bracket, allowing the generator to be lowered enough to obtain the correct belt adjustment.

On 344 machines, the diameter of the generator driving pulley was changed from 2-7/8" diameter to 2-5/8" diameter to allow for the use of this smaller belt; however, a number of 344 machines were shipped before this change went into effect.

When it is found that the generator belt is too tight on the 344 machines, check the diameter of the generator drive pulley. If it is the old pulley (2-7/8" diameter), write in to the Service Department for the correct pulley (Part No. 50186, 2-5/8" diameter). When ordering this pulley, give the engine number of the 344 machine on which it is to be installed.

It is very IMPORTANT that this condition be taken care of because a tight belt wears out fast and also decreases the life of the generator drive sprocket and armature bearings.



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 144
September 25, 1944

INSTALLATION INFORMATION FOR INDIAN FOUR CLUTCH PLATE, DISC AND FLYWHEEL ASSEMBLY (1932-1941 Models)

Below are listed all the clutch and flywheel assemblies used for Indian Four models from 1932 to 1941. Assemblies are listed according to model. Any of these complete clutch and flywheel assemblies are interchangeable as a unit assembly in any four cylinder model from 1932 to 1941. "Out-of-stock" parts are no longer available as they can be replaced by parts used in later models.

These assemblies are standard factory equipment on the models listed but may have been changed in the field.

CLUTCH PLATE, DISC AND FLYWHEEL ASSEMBLY

MODELS	PART NO.	NAME AND DESCRIPTION	NO. USED	ORDER OF ASSEMBLY INTO FLYWHEEL
ASSEMBLY #1				
403 to 437 Except 435 DOC, DCG, DCD, DCF, DCG	35D167	Flywheel	1	
	35C329	Outer disc (large steel)	5	1,3,5,7,9
	35C208	Inner disc (small steel)	4	2,4,6,8
	35C207X (OUT OF STOCK)	Clutch pressure plate assy. (With release bearing) No Raybestos lining required.	1	10
	35D117X	Clutch flywheel plate assy. (Spring carrier)	1	11

MODELS	PART NO.	NAME AND DESCRIPTION	NO. USED	ORDER OF ASSEMBLY INTO FLYWHEEL
ASSEMBLY #4 (Continued)				
441 DDA	75872	Inner disc (small steel)	2	1,3
	75871	Outer disc (large steel) Splines on outside edge	1	2
	75869	Clutch pressure plate assy. (With release bearing) Raybestos lining (#75868) riveted on. 8-3/16" outside diameter, 3/16" thick. Splines on outside edge.	1	4
	86535	Clutch flywheel plate assy. (Spring carrier) 12 springs used.	1	5

NOTE: THIS CLUTCH ASSEMBLY (#4) CAN ONLY BE USED WITH #86533 FLYWHEEL.

INDIAN FOUR CLUTCH GROUP

Below are listed all Indian Four clutch parts with descriptions which will enable you to identify individual parts used in the Indian Four clutch. Indented parts are sub-assembly parts to the main parts. Refer to this descriptive listing when making up clutch assemblies to insure the proper parts being used in an assembly.

MODELS	PART NO.	PART NO. SUB-ASSY.	DESCRIPTION	NO. PER M/C	NO. PER ASSY.
403 to 437 Except 435	35C207X (OUT OF STOCK)		Clutch pressure plate assy. (With release bearing. No lining used.)	1	
435 ONLY	74751 (OUT OF STOCK)		Clutch pressure plate assy. (With release bearing.)	1	
438 to 440	75183		Clutch pressure plate assy. (With release bearing and lining.)	1	
*NOTE: 75183 WITH LINING REMOVED REPLACES 35C207X AND 74751.					
441	75869		Clutch pressure plate assy. (With release bearing and lining.)	1	

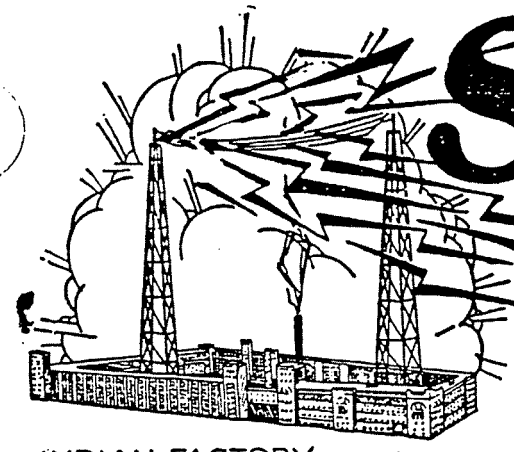
MODELS	PART NO.	PART NO. SUB-ASSY.	DESCRIPTION	NO. PER M/C	NO. PER ASSY.
438 to 440	75183		Pressure Plate (Round slots on outside diameter.)		1
403 to 437	35C207X (OUT OF STOCK)		Pressure Plate (Round slots on outside diameter.)		1
441		75868	Lining, pressure plate Outside diameter 8-3/16" 3/16" thick, Raybestos		1
441		75868	Lining, Flywheel Outside diameter 8-3/16" 3/16" thick, Raybestos		1
438 to 440		75185	Lining, Pressure Plate Outside diameter 7-5/8" 5/32" thick, Raybestos		1
438 to 441		37837	Rivet		8
403 to 437 Except 435	35D117X (AVAILABLE)		Clutch flywheel plate assy. (Spring Carrier) 1/8" thick steel, 8 spring studs, 8 guide pins	1	
435 ONLY	85572 (OUT OF STOCK)		Clutch flywheel plate assy. (Spring Carrier) 1/8" thick steel, 8-7/32" diameter spring studs, 8 guide pins.	1	
438 to 440	85999 (AVAILABLE)		Clutch flywheel plate assy. (Spring Carrier) 1/8" thick steel, 16 sprihg studs, 8 guide pins.	1	
NOTE: #35D117X REPLACES #85572					
441	86535 (AVAILABLE)		Clutch flywheel plate assy. (Spring Carrier) 3/16" thick steel, 16 spring studs; no guide pins used.	1	
441	75871		Outer disc (Splines on outside diameter.)		

MODELS	PART NO.	PART NO. SUB-ASSY.	DESCRIPTION	NO. PER M/C	NO. PER ASSY.
438 to 440	35C329		Outer disc (Round slots on Outside Diameter.)	1	
403 to 437	35C329		Outer disc (Round slots on Outside Diameter.)	5	
441	75872		Inner disc (Outside Diameter 8-3/16", spline on Inside Diameter.)	2	
438 to 440	35C208		Inner disc (Outside Diameter 7-5/8", spline on Inside Diameter.	2	
403 to 437	35C208		Inner disc (Outside Diameter 7-5/8", spline on Inside Diameter.)	4	
438 to 441	35B617		Clutch spring (12 to 16 may be used with available plate No. 75183.)	12	
435 ONLY	40048 (OUT OF STOCK)		Spring - inner) Purchase in	8	
435 ONLY	40049 (OUT OF STOCK)		Spring - Outer) sets only	8	
438 to 440	75186		Outer end disc assy. (Round slots on Outside Diameter with lining riveted on.)	1	
438 to 440		75185	Lining, outer end disc Outside Diameter 7-5/8" 5/32" thick, Raybestos.		1
438 to 440		37836	Rivet		8
436	40438 (OUT OF STOCK)		Clutch weight assy. Heavy weights 1½" long.	4	
436 to 437	41005 (AVAILABLE)		Clutch weight assy. Light weights 3/4" long.	4	

MODELS	PART NO.	PART NO. SUB-ASSY.	DESCRIPTION	NO. PER M/C	NO. PER ASSY.
436 to 437	40213		Clutch weight retaining spring	4	
441	86533		Flywheel - Raybestos lining riveted on.	1	
441	37846		Rivet	8	
403 to 440	35D167		Flywheel	1	

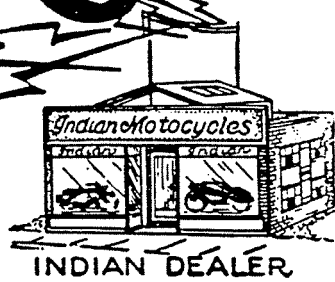
INDIAN MOTOCYCLE COMPANY

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



Number 145
October 30, 1944

344 SEAT POST SPRINGS:

All new 344 machines being delivered have the heavy seat post spring assembly usually specified by Police Departments. This assembly consists of two (2) heavy lower springs. (#42774)

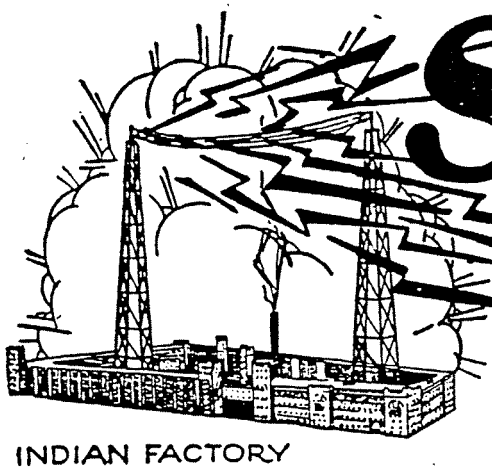
Actually, there are three seat post springs combinations to accommodate the variation in different riders' weights. These combinations can be made up as follows:

1. 2 - 42774 Lower Spring (Heavy)
   For heavy riders - as supplied in new machines.

2. 1 - 42774 Lower Spring (Heavy)
   1 - 42773 Lower Spring (Light)
   For medium weight riders.

3. 2 - 42773 Lower Spring (Light)
   For light weight riders.

The light springs (42773) are available and may be ordered from the Parts Department.



Service Shots

FOR Indian Dealers

Number 146
November 13, 1944

344 BRAKE DRUM BEARINGS (#40446)

The hydraulic grease fittings have been removed from 344 front, rear and sidecar wheel brake drums. This change was made because of the danger of over-greasing the brake drum ball bearings. When too much grease is forced into these bearings, the seal is broken, which allows the excessive grease to flow onto the brake linings and the result is no brakes. This change is in effect now and on new machines being delivered.

The brake drum bearings are machine packed here at the factory with Valvoline wheel bearing grease, (No. 2½). They must be repacked after approximately 5,000 miles of operation, or at such time as the brake drum is removed for some other reason.

INDIAN MOTOCYCLE COMPANY

Walter Brown
Service Manager

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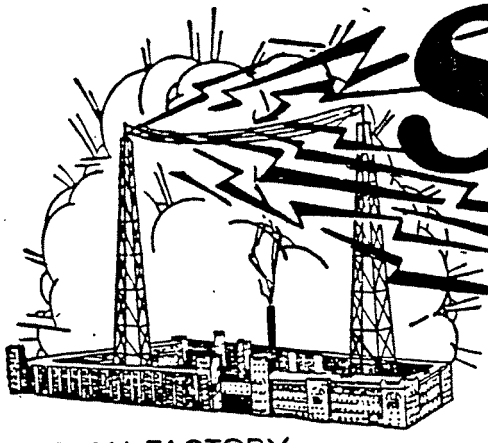


Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 147
November 13, 1944

REMINDER!

CHANGE OIL TO PREVENT MOTOR DAMAGE

Heavy cold oil will not flow from the oil tank through the oil lines to the oil pump. The roller bearings, pistons, bushings, etc., will not get lubricated if the oil does not reach the oil pump. The result will be in most cases scuffed pistons, because they are the first parts to be affected by the lack of lubrication. In order to prevent this damaging condition, there are three precautions to be taken.

1. The correct grade of oil must be used.
2. The oil in the engine and transmission must be changed at this time of year because of the changes in temperature.
3. The engine must be idled long enough to warm up the oil in the tank and circulate through the oiling system before starting off.

THE RECOMMENDED GRADES OF OIL FOR MOTORCYCLE USE:

ENGINE

Below	0° F.	Use S.A.E. #10-W
Between 0° F. and	32° F.	Use S.A.E. #20-W
Between 32° F. and	60° F.	Use S.A.E. #30
Above	60° F.	Use S.A.E. #50

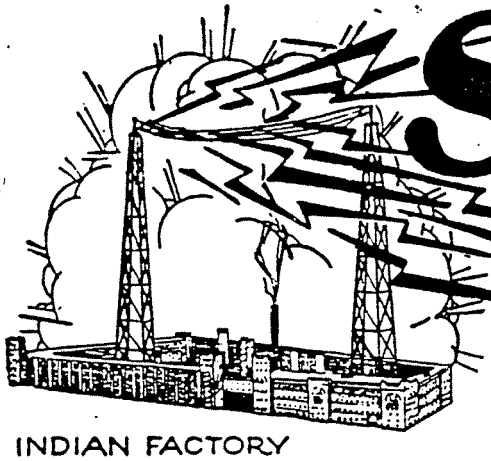
Recommendation for breaking in: Use one grade lighter than indicated by temperature down to #10-W.

TRANSMISSION - PRIMARY DRIVE - CLUTCH

Below	0° F.	Use S.A.E. #10-W
Between 0° F. and	32° F.	Use S.A.E. #20-W
Above	32° F.	Use S.A.E. #30

The Indian Motocycle Company will not give consideration to troubles arising from the use of unknown oils or too heavy oils for new motors and cold temperatures.

USE INDIAN OIL ALWAYS



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 148
December 4, 1944

PRECAUTION TO USERS OF LEG SHIELDS - SPLASH SHIELDS - LARGE WIND SHIELDS

We sell these accessories to riders for protection from wet and cold weather. However, we must warn them against the danger of injuring their engines if they ride their motorcycles too fast when equipped with the above-mentioned accessories, particularly the fabric splash shields or metal leg shields.

The passage of air around the cylinder and cylinder head cooling fins is restricted to the extent that it is similar to operating an automobile without a fan belt or without water in the radiator; that is, the cylinder and cylinder head temperature will rise much higher than it does under normal operating conditions.

The rolling resistance built up by a head wind against the large wind shield causes the engine to labor abnormally, which also contributes to this over-heating condition.

The first warning of insufficient cooling is the extraordinary heat radiating from the right side of the engine.

The second warning is "pinging", pre-ignition of the spark plugs, which causes the engine to slow down.

THE FOLLOWING PRECAUTIONS SHOULD BE TAKEN TO PREVENT SERIOUS DAMAGE TO THE ENGINE:

1. Do not ride mile after mile over 50 m.p.h. (solo) 45 m.p.h. (sidecar) when the temperature is above 40°. (If it is necessary to ride above these speeds, we suggest that you remove the right leg shield.)

2. Back off the throttle when you feel the heat on the right side of the engine or when you hear the engine "ping". (Cruise at a speed where the engine doesn't "ping".)

3. Do not use a "hotter" spark plug than Indian "C". (Use Indian "D" if the ease of starting is not affected when the engine is cold.)

4. Do not run on "too lean" a mixture to save gasoline.

5. Clean gasoline filter frequently to assure an unrestricted flow of gasoline to the carburetor bowl.

When these precautions are taken, a rider can enjoy the protection from the weather that these shields afford without injuring his engine; otherwise, he may experience any one or all of the following conditions:

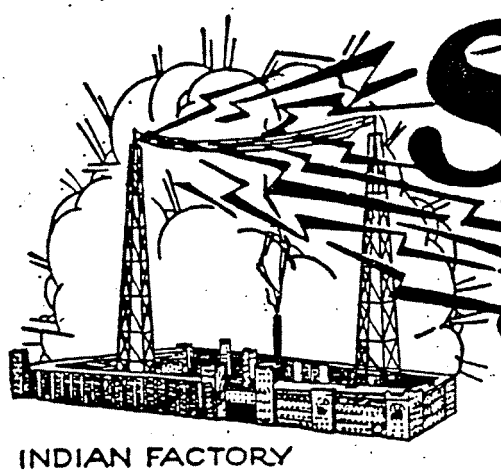
1. Poor oil mileage.

2. Scored pistons and cylinder walls because there is not enough clearance to take care of the greater piston expansion due to higher than normal temperatures.

3. Burnt cylinder head at spark plug insert. The cylinder heads are heated to a certain temperature when the insert is installed, which is higher than normal running temperature and if the head temperature gets over this point, there is a possibility of the insert becoming loose and burning through.

INDIAN MOTOCYCLE COMPANY

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 149
December 25, 1944

CONNECTING ROD SIDE-CLEARANCE OR "END-PLAY"

The recommended connecting rod side-clearances between the outside edge of the forked connecting rod bushing and flywheel thrust washers are --

.015" to .020" - 74 cu. in. motors
.010" to .015" - 30.50 and 45 cu. in. motors

The recommended connecting rod side-clearance between the bushings of the two rods is --

.005" to .015" - All Twins

These clearances are measured with a "feeler" gauge.

Different size thrust washers are available for 45" and 74" in order that you may arrive at the recommended clearances:

#50311	Crankshaft	thrust	washer	(new	.047"-(45" - 74")
44386	"	"	"	"	.057"-(" ")
27B268	"	"	"	(Std.)	.062"-(" ")
50310	"	"	"	(New)	.072"-(" ")
16A13	"	"	"	(Std.)	.062"-(30.50)
44345	"	"	"	(Optional)	.057"-(30.50)

FLYWHEEL ASSEMBLY SIDE-CLEARANCE OR "END-PLAY"

The recommended flywheel assembly side-clearance between the pinion and drive shaft thrust washers and pinion and drive shaft housings is --

.015" to .020" - All Twins (30.50" - 45" - 74")

The following thrust washers are available in order to arrive at the recommended clearances--

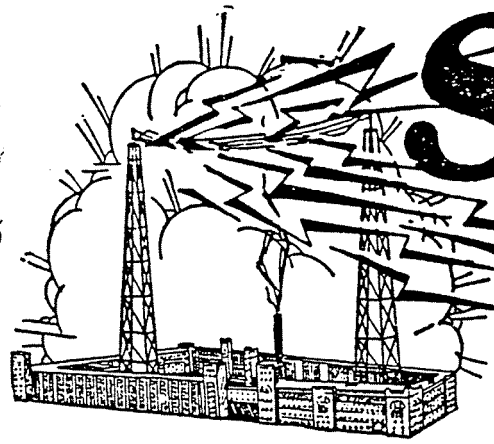
27B174	Pinion & Drive Shaft thrust washer	(std.).062"(45"-74")
37625	Pinion & Drive Shaft thrust washer	(optional).057"(45"-74")
16A13	Pinion Shaft Thrust Washer	(std.).062"(30.50")
44345	" " " "	(optional).057"(30.50")
27B174	Drive Shaft Thrust Washer	(std.).062"(30.50")
37625	" " " "	(optional).050"(30.50")

Any excessive side-clearance can be taken up by removing the pinion housing and putting in pinion housing washer shims behind the pinion housing washer until you have arrived at the recommended clearance.

22B476 Pinion Housing washer shim - .005"

It is important that you "set up" the connecting rods and flywheels with the correct side-clearance because when there isn't enough clearance, the retainers bear against the thrust washers and the result is -- burnt thrust washers and damage to the retainer and roller bearings. When there is too much side-clearance, the washer will not stay on the thrust washer pins and the result will be the same as mentioned above.

THE INDIAN MOTOCYCLE COMPANY
SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers

Number 151
October 8, 1945

We have developed the new Indian Service Time Schedule to be used merely as a guide for estimating the labor charge for service work. The time given for each operation has been arrived at from actual experience and dealer recommendations and is based on work performed under <u>average</u> conditions.

On the previous Time Schedule, we have had complaints because too much or too little time was allowed for this or that operation. It would be impossible for us to arrive at a set time to suit every dealer, due to the fact that some mechanics work faster than others, because it is natural for them or because they have had more experience.

A great deal depends on the service shop facilities. A well equipped shop, operated on a systematic basis, will handle jobs faster than one that isn't. Then again, some jobs can be finished quicker than others because of the condition of the motorcycle. A motorcycle that has been well taken care of by its owner is easier to work on than one owned by a commercial outfit that receives very little attention.

In order for us to publish a listing of the "Times" required to do service work to suit every dealer, it would be necessary to make a survey of every dealer's service shop in the country and print a separate Time Schedule for each dealer; therefore, we are endeavoring to point out that the Indian Time Service Schedule was developed and figured for the average mechanic, with all the special motorcycle tools and equipment available. This must be taken into consideration when using it. When estimating a job, consideration must be given to the condition of the motorcycle involved and your particular service shop personnel and equipment.

	75494-X	.040 O.S.	
	75494-Y	.050 O.S.	
	75494-Z	.060 O.S.	
	75494-SF	Semi-Finish	
Piston	86516	Std.	1941 - 46 "74"
	86516-T	.005 O.S.	
	86516-U	.010 O.S.	
	86516-V	.020 O.S.	
	86516-W	.030 O.S.	
	86516-X	.040 O.S.	
	86516-Y	.050 O.S.	
	86516-Z	.060 O.S.	
	86516-SF	Semi-Finish	
Piston	86517	Std.	"45"
	86517-T	.005 O.S.	
	86517-U	.010 O.S.	
	86517-V	.020 O.S.	
	86517-W	.030 O.S.	
	86517-X	.040 O.S.	
	86517-Y	.050 O.S.	
	86517-Z	.060 O.S.	
	86517-SF	Semi-Finish	
Piston	75461	Std.	1938 - 42 "4 cyl"
	75461-T	.005 O.S.	
	75461-U	.010 O.S.	
	75461-V	.020 O.S.	
	75461-W	.030 O.S.	
	75461-SF	Semi-Finish	
Piston Pin	28B286	Std.	1936 - 46 "74"
	28B286-T	.002 O.S.	
	28B286-V	.005 O.S.	
	28B286-W	.010 O.S.	
Piston Pin	38438	Std.	1936 - 42 "45"
	38438-T	.002 O.S.	
	38438-V	.005 O.S.	
	38438-W	.010 O.S.	
Piston Pin	38678	Std.	1936 - 41 "30.50"
	38678-T	.002 O.S.	
	38678-U	.003 O.S.	
	38678-V	.005 O.S.	
	38678-W	.010 O.S.	

66.

Piston Pin

VF2010	Std.	1938 - 42
VF2010-T	.002 O.S.	"4 cyl"
VF2010-V	.005 O.S.	
VF2010-W	.010 O.S.	
VF2010-X	.020 O.S.	

Ring - Compression

41587	Std.	1939 - 42
41587-T	.005 O.S.	"45"
41587-U	.010 O.S.	
41587-V	.020 O.S.	
41587-W	.030 O.S.	
41587-X	.040 O.S.	
41587-Y	.050 O.S.	
41587-Z	.060 O.S.	

Ring - Compression

41711	Std.	1938 - 46
41711-T	.005 O.S.	"74"
41711-U	.010 O.S.	
41711-V	.020 O.S.	
41711-W	.030 O.S.	
41711-X	.040 O.S.	
41711-Y	.050 O.S.	
41711-Z	.060 O.S.	

Ring - Compression

42310	Std.	1940 - 41
42310-T	.005 O.S.	"30.50"
42310-U	.010 O.S.	
42310-V	.020 O.S.	
42310-W	.030 O.S.	
42310-X	.040 O.S.	
42310-Y	.050 O.S.	
42310-Z	.060 O.S.	

Ring - Compression

42234	Std.	1938 - 41
42234-T	.005 O.S.	"4 cyl"
42234-U	.010 O.S.	
42234-V	.020 O.S.	
42234-W	.030 O.S.	
42234-X	.040 O.S.	
42234-Y	.050 O.S.	
42234-Z	.060 O.S.	

Ring - Bevel Compression

42235	Std.	1938 - 42
42235-T	.005 O.S.	"4 cyl"
42235-U	.010 O.S.	
42235-V	.020 O.S.	
42235-W	.030 O.S.	
42235-X	.040 O.S.	
42235-Y	.050 O.S.	
42235-Z	.060 O.S.	

Ring - Oil

41477	Std.		1938 - 42
41477-T	.005	O.S.	"45"
41477-U	.010	O.S.	
41477-V	.020	O.S.	
41477-W	.030	O.S.	
41477-X	.040	O.S.	
41477-Y	.050	O.S.	
41477-Z	.060	O.S.	

Ring - Oil

41476	Std.		1938 - 46
41476-T	.005	O.S.	"74"
41476-U	.010	O.S.	
41476-V	.020	O.S.	
41476-W	.030	O.S.	
41476-X	.040	O.S.	
41476-Y	.050	O.S.	
41476-Z	.060	O.S.	

Ring - Oil

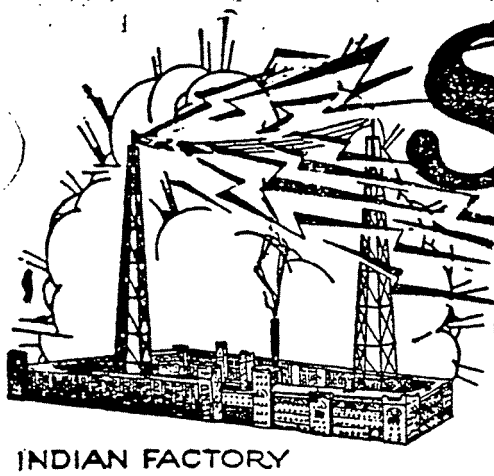
38677	Std.		1936 - 41
38677-T	.005	O.S.	"30.50"
38677-U	.010	O.S.	
38677-V	.020	O.S.	
38677-W	.030	O.S.	
38677-X	.040	O.S.	
38677-Y	.050	O.S.	
38677-Z	.060	O.S.	

Stud - Kickstarter Crank

39933	Std.		1936 - 46
39933-U	.010	O.S.	"74"
39933-V	.020	O.S.	

Stud - Kickstarter Crank

40217	Std.		1936 - 42
40217-T	.005	O.S.	"45"
40217-U	.010	O.S.	Model 741
40217-V	.020	O.S.	



Service Shots

FOR Indian Dealers

Number 152
December 10, 1945

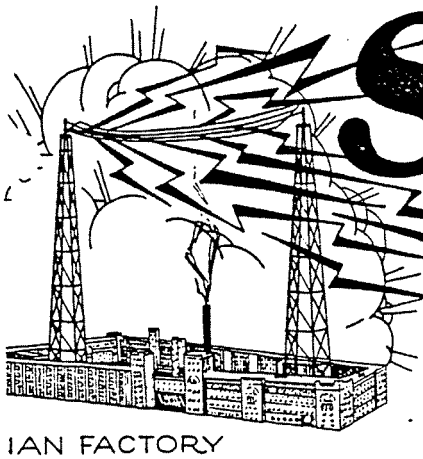
DROP CENTER TYPE RIM CONVERSION FOR JUNIOR SCOUT CLINCHER RIM WHEEL

This conversion is suggested when the 3.50 x 18 clincher tires are not available. The Sport Scout or 741 model rim is used with 741 model spokes (diameter .125", length 8-1/8"). It is advisable to use new nipples, simply cutting the spokes, rather than waste time trying to save the old nipples, especially if they are rusted onto the spokes, although the original spoke nipples can be used.

Parts Required:

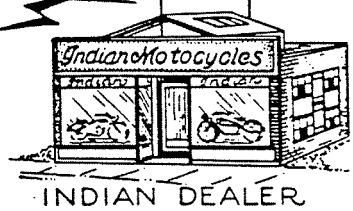
1	-	74549	Rim
40	-	43770	Spoke
40	-	H23142	Nipple

SERVICE DEPARTMENT



Service Shots

FOR Indian Dealers



IAN FACTORY

INDIAN DEALER

FEBRUARY 20, 1942
NUMBER 153
REVISION OF NO. 136

SERVICE INFORMATION APPLYING TO MODEL "M" LINKERT CARBURETORS ON MOTORCYCLES

M-341, M-341-1, M-342, M-343, M-344, M-344A, M-441, M-541, M-641, M-641-1, M-642, M-644, M-741, M-741-1, M-841R, M-841L, M-Bonn., M-Bonn., M-Bonn.-1.

(All models have the model number stamped on the pad ontop of the carburetor.)

These notes apply to carburetors which have been in service for some time and have become dirty, full of "crust" in the throttle barrel, and are found to be difficult to get adjusted properly. Usually the effect of excessive dirt or "crust" formation in the carburetor throttle barrel, around the throttle disc, and in the fuel mixture passageways, is to cause the carburetor to have a lean spot off idle. This "crust" should be removed, particularly when a lean spot comes in at speeds off idle up to 30 M.P.H. with the low speed (idle)adjustment set properly for idling. The idle adjustment should not be set to the very lean side when checking this point, but to a point about five to ten notches rich from the setting where the motor dies from leanness.

HOW TO REMOVE THE CRUST

1. Back off the throttle lever stop screw so that the throttle disc closes tightly. With a sharp pointed tool like a sharp pen knife or scriber, scratch a line deeply on a closed throttle disc on both sides of the throttle shaft and against the shaft. These lines should "jibe up" again with the shaft when you replace the disc. Remove the throttle lever, throttle disc and shaft, the idle hole body plug next to the idle holes in the throttle barrel, the body plugs in the carburetor flange and carburetor body idle channels, and the low speed (idle) lift lever and needle valve assembly. Also remove the venturi and nozzle.

2. Scrape out the caking or "crust" in the throttle barrel with a scraper or knife, being sure not to cut into the metal. "Crust" or caking can be removed easily with a rag moistened in acetone.

3. Clean up the throttle disc by rubbing it on both sides on emery cloth on a flat plate and clean the edge of the disc all around, being careful not to round the corners or cut into the metal. The disc can also be cleaned with acetone. See note 2.

4. Clean out the idle holes in the throttle barrel next to the disc with the proper size drills. See list for proper sizes for both holes for all models of carburetors.

Model (Stamped in top of Carb. body.)	Carb. Size	Venturi Size	Small Idle Hole Nearest Manifold Drill Size	Idle Hole Farthest from Manifold Flange Drill Size	Slot Width
M-341	1¼"	1-1/16"	#66	#53	.009"
M-341-1 and 342	1¼"	1-1/16"	#66	#53	.0155"
*M-343 and M-344	1¼"	1-1/16"	#66	#53	.0155"
*M-344-A	1¼"	15/16"	#66	#53	.0155"
M-441	1"	13/16"	#70	#57	.009"
M-541	1"	5/8"	#70	#56	.009"
M-641	1¼"	15/16"	#70	#55	.009"
M-641-1 and 642	1¼"	15/16"	#70	#54	.009"
*M-644	1¼"	15/16"	#70	#54	.009"
*M-741	1"	13/16"	#70	#56	.009"
*M-741-1	1"	3/4"	#70	#56	.009"
*M-841R and 841L	1"	13/16"	#71	#56	.009"
M-Bonn	1¼"	1-1/8"	#66	#53	.009"
M-Bonn	1¼"	1-1/8"	#70	#55	.009"
M-Bonn-1	1¼"	1-1/8"	#70	#51	.020"

*These models have 1/8" pipe thread float valve seats. All others have straight 7/16" -27 thread float valve seats.

Clean out the slot of all models by inserting the tool with the proper thickness Slot Tool - see List above for slot width. The .008" Slot Tool has no ring around handle. The .014" Slot Tool (to be used in the .015" Slot) has 2 rings around the handle. The .018" Slot Tool (to be used in the .020" Slot) has 3 rings around the handle.

6. Clean out the idle channels with the #42 drill. <u>When cleaning vertical idle channel do not completely bottom drill as doing so may damage the low speed needle seat.</u>

7. Clean out the low speed (idle) needle valve seat hole with the proper drill size. All 1¼" carburetors are cleaned out with the #53L#2 L.S.N.V. Seat Hole Tool. This tool has 2 rings around the handle. 1" Carburetors are cleaned out with the #55-L L.S. N.V. seat Hole Tool.

8. Blow out all channels and holes with compressed air and wash all parts in gasoline.

9. Re-assemble the parts, being sure the lift lever spring seat (washer) is between the spring and carburetor body when assembling the low speed lift lever and needle valve assembly back into place. This spring seat or washer limits the air bleed to the idle system and must be in place; otherwise carburetor cannot be adjusted for satisfactory motor idling. There are two kinds of seat washers, a thick one and a thin one. Be sure to replace the one as assembled at the factory.

Be sure the throttle disc is assembled in the barrel properly and closes off tight. Have the correct side of the disc up or toward the flange and with the lines you scratched lining up with the throttle shaft exactly. Push up the shaft collar (on the throttle shaft) firmly against the body before tightening the throttle disc screws. The throttle lever should be clamped to the shaft with the disc wide open and with the throttle lever wide open stop against the body lug and with wear take-up spring between the throttle lever and bearing.

10. If the carburetor bowl continually leaks or runs over, remove it from the carburetor body and first remove all dirt by cleaning it out with gasoline and compressed air. Hold the bowl up-side-down so that the float valve closes and suck on the bottom of the float valve seat. The valve and seat should hold this suction. If the valve and seat leak after repeated testing, replace with a new float valve and float valve seat.

11. If the float is damaged or "logged" replace with a new float. Remove the old float by cutting the seal around the float screw which fastens the float to the float lever. This seal can be cut with a pocket knife. Remove the float screw and assemble the new float to the lever. This should be done with the float valve, float valve lever, float hinge pin and screws, float valve seat and gasket assembled in the bowl. Before tightening float screw securely, adjust as follows; Looking down on bowl with gasoline inlet side away from you, pull float toward you to the limit of slot in float lever and about 1/16" to left of center line. This provides necessary body clearance. Tighten the float screw and cement the top of the float screw to the float with Dupont Household Cement, or with a mixture of celluloid dissolved in acetone, or with thick shellac. When the cement has dried thoroughly, check the float height and adjust as explained in 12.

12. Check float level, and if necessary, reset to 1/4" (M-741 and M-741-1 reset to 7/16".) Measure directly opposite float lever with bowl held up-side-down (top of float to top of bowl.) When re-adjusting Linkert carburetor float, do notattempt to do so by simply bending float lever upward in some manner, without dis-assembling from bowl. Re-adjusting in this manner bends and spreads the fingers between which the head of float needle fits, and thus develops lost motion between float and needle. Float and lever assembly should be removed from bowl, and lever then bent as required.

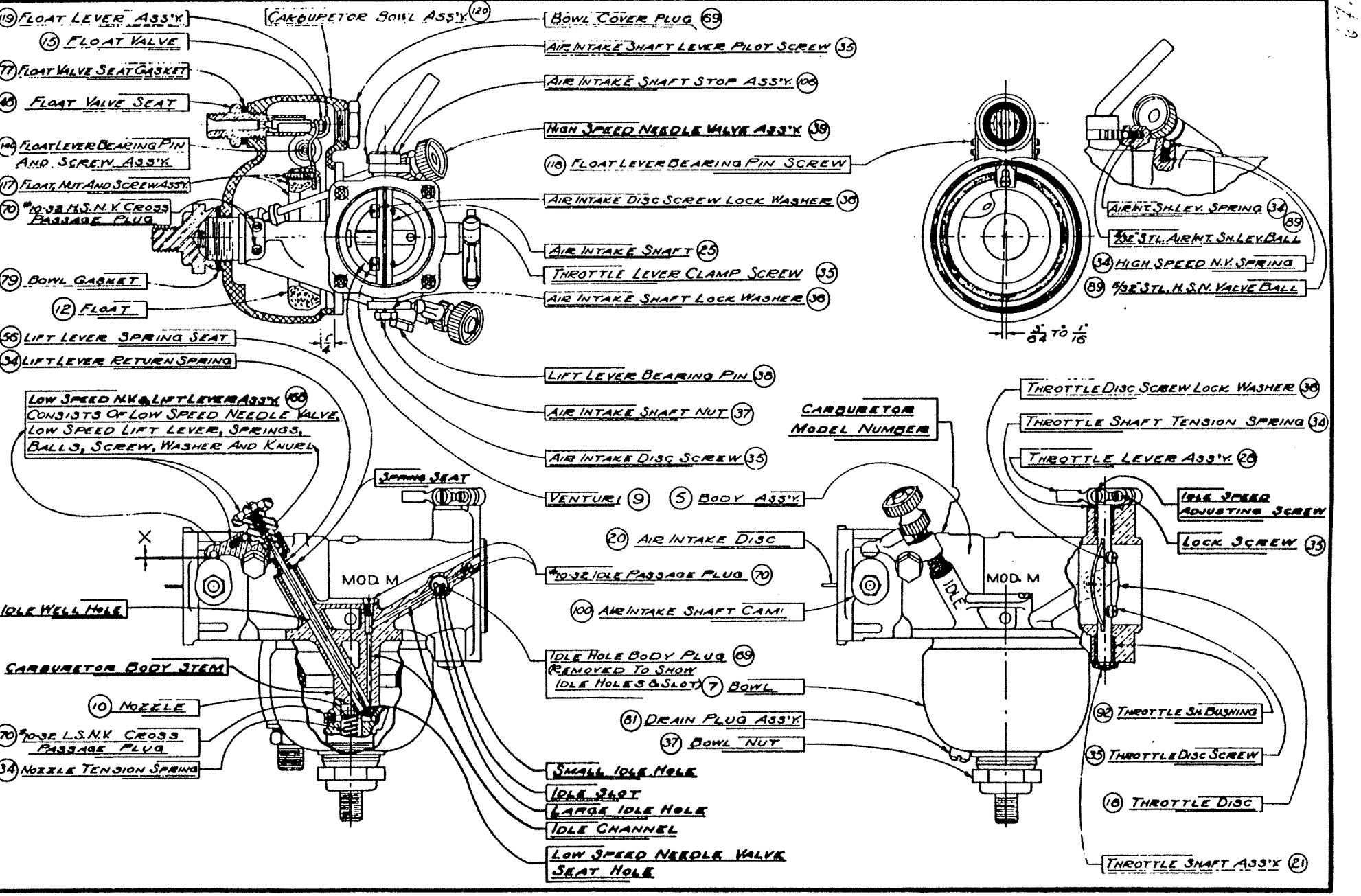
Before re-assembling, see that needle head is a good free fit between lever fingers with not more than approximately .003" play. This clearance can also be checked after the lever is assembled in bowl, by carefully placing a small screwdriver or a small rod against the valve head in such a position that it will hold the valve firmly against the seat and yet not bind the lever. Moving the lever up and down will then show the amount of actual clearance between the valve head and fingers. If this clearance is excessive, the float mechanism will not feed properly. After assembling note that float is approximately square with top of bowl.

13. The bowl drain plug now being used in the model "M" carburetors can be removed for quick flushing of the bowl. Before removing this plug, turn off the gas at the tanks. Be sure to pull this screw up tightly when replacing.

ADJUSTING CARBURETOR ON MOTOR

14. The low speed needle is the adjusting needle to the right (looking at the air intake end.) If low speed needle is so far out of adjustment that motor does not start readily, screw it down until needle knurl bottoms, then unscrew it about three to four turns. After starting the engine, unscrew it further if too lean or turn it down if too rich. After motor has "warmed up" set low speed needle for smooth idling. Be sure choke is wide open before making idle mixture adjustments. Too rich an idle adjustment will cause excessive rolling, and too lean an adjustment will result in idle dying or very rough and unsteady operation. Starting and all-around carburetion are better with low speed adjustment slightly rich rather than as lean as it can be made and with throttle stop screw screw set for reasonable fast idling.

High Speed adjustment is made by setting the High Speed Adjusting Needle (Left Hand adjustment looking at the Air Intake) to the proper setting. Good average High Speed Settings are as follows:


(19) Float Lever Ass'y.
(15) Float Valve
(77) Float Valve Seat Gasket
(43) Float Valve Seat
(14) Float Lever Bearing Pin And Screw Ass'y.
(17) Float, Nut And Screw Ass'y.
(70) #10-32 H.S.N.V. Cross Passage Plug
(79) Bowl Gasket
(12) Float
(56) Lift Lever Spring Seat
(34) Lift Lever Return Spring
Low Speed N.V. & Lift Lever Ass'y. (66)
Consists Of Low Speed Needle Valve, Low Speed Lift Lever, Springs, Balls, Screw, Washer And Knurl
Spring Seat
X
MOD. M
Idle Well Hole
Carburetor Body Stem
(10) Nozzle
(70) #10-32 L.S.N.V. Cross Passage Plug
(34) Nozzle Tension Spring
(120) Carburetor Bowl Ass'y.
(69) Bowl Cover Plug
(35) Air Intake Shaft Lever Pilot Screw
(106) Air Intake Shaft Stop Ass'y.
(39) High Speed Needle Valve Ass'y.
(118) Float Lever Bearing Pin Screw
(36) Air Intake Disc Screw Lock Washer
(25) Air Intake Shaft
(35) Throttle Lever Clamp Screw
(36) Air Intake Shaft Lock Washer
(38) Lift Lever Bearing Pin
(37) Air Intake Shaft Nut
(35) Air Intake Disc Screw
(9) Venturi
(5) Body Ass'y.
(20) Air Intake Disc
#10-32 Idle Passage Plug (70)
(100) Air Intake Shaft Cam
Idle Hole Body Plug (69) (Removed To Show Idle Holes & Slot)
(7) Bowl
(81) Drain Plug Ass'y.
(37) Bowl Nut
Small Idle Hole
Idle Slot
Large Idle Hole
Idle Channel
Low Speed Needle Valve Seat Hole
Air Int. Sh. Lev. Spring (34)
(89) 5/32" Stl. Air Int. Sh. Lev. Ball
(34) High Speed N.V. Spring
(89) 5/32" Stl. H.S.N. Valve Ball
1/32 To 1/16
Carburetor Model Number
Throttle Disc Screw Lock Washer (36)
Throttle Shaft Tension Spring (34)
Throttle Lever Ass'y. (26)
Idle Speed Adjusting Screw
Lock Screw (33)
MOD. M
IDLE
(92) Throttle Sh. Bushing
(33) Throttle Disc Screw
(18) Throttle Disc
Throttle Shaft Ass'y. (21)

M-341	1-1/2	turns open from closed position
M-341-1	1-1/2	" " " " "
M-342	1-1/2	" " " " "
M-343	1-1/2	" " " " "
M-344	1-1/2	" " " " "
M-344-A	1-3/8	" " " " "
M-441	1-3/8	" " " " "
M-541	1-1/2	" " " " "
M-641	1-3/8	" " " " "
M-641-1	1-3/8	" " " " "
M-642	1-3/8	" " " " "
M-644	1-3/8	" " " " "
M-741	1-1/2	" " " " "
M-741-1	1-1/8	" " " " "
M-Bonn.	1-5/8	" " " " "
M-Bonn.	1-5/8	" " " " "
M-Bonn.-1	1-5/8	" " " " "

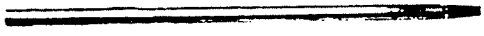
LINKERT CARBURETOR CLEANING TOOLS

These Tools are needed in cleaning "caked on dirt and crust" from jets and passageways to restore original new carburetor performance. Do not use these Tools in power drill. They are designed for HAND USE ONLY.

No. 1

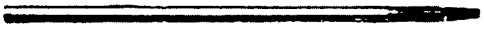
Slot Blade Tool — Models M-341, M-441, M-541, M-641, M-641-1, M-642, M-644, M-741, M-741-1, M-841R, M-841L, M-Bonn, M-Bonn, Part #150018

No. 2



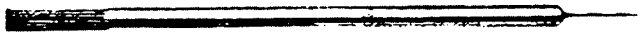
Slot Blade Tool — Models M-341-1, M-342, M-343, M-344, M-344-A, Part #150019

No. 3



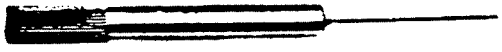
Slot Blade Tool — Model M-Bonn-1 Part #150020

No. 70



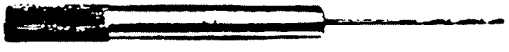
Idle Hole Drill — Models M-441, M-541, M-641, M-641-1, M-642, M-644, M-741, M-741-1, M-Bonn, M-Bonn-1 Part #150021

No. 66



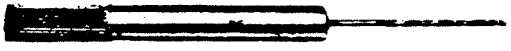
Idle Hole Drill — Models M-341, M-341-1, M-342, M-343, M-344, M-344-A, M-Bonn Part #150022

No. 56



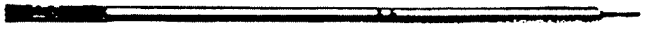
Idle Hole Drill — Models M-541, M-741, M-741-1, M-841-R, M-841-L Part #150024

No. 55



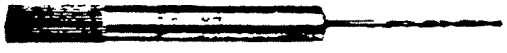
Idle Hole Drill — Models M-641, M-Bonn. Part #150025

No. 55-L



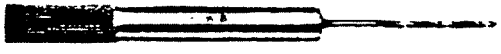
Low Speed Seat Hole Drill — All 1" Models Part #150026

No. 54



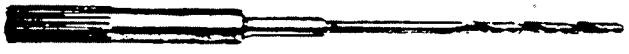
Idle Hole Drill — Models M-641-1, M-642, M-644 Part #150027

No. 53



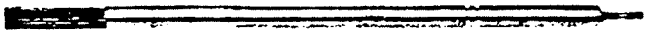
Idle Hole Drill — Models M-341, M-341-1, M-342, M-343, M-344, M-344-A, M-Bonn. Part #150028

No. 42



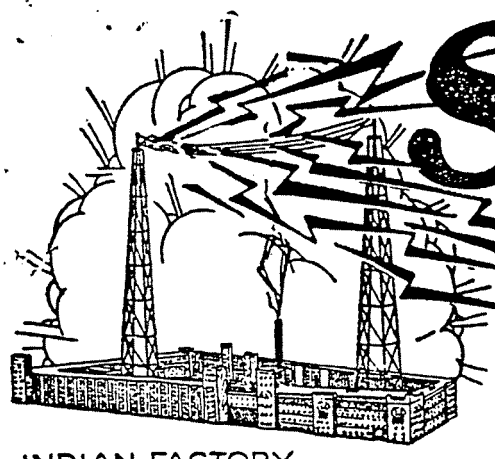
Idle Channel Drill — All Models Part #150030

No. 53-L
No. 2



Low Speed Seat Hole Drill — All 1¼" Models Part #150031

INDIAN MOTOCYCLE COMPANY SPRINGFIELD, MASS. U. S. A.



Service Shots

FOR Indian Dealers

No. 154
March 18, 1946

OVERSIZE AND UNDERSIZE PARTS

In order to help dealers in servicing INDIAN Motorcycles we are listing below oversize and undersize parts that are carried in stock.

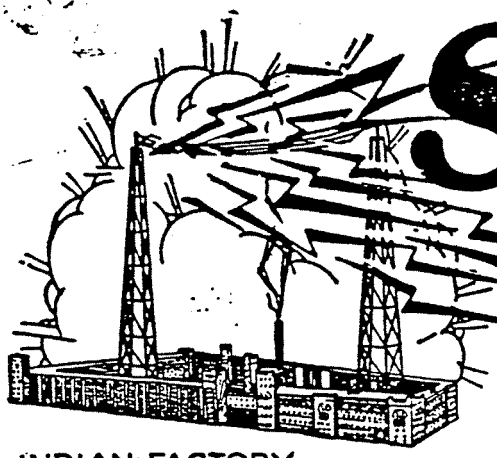
When ordering these parts use the full part number followed by the word--OVERSIZE or UNDERSIZE--and the size wanted.

Semi-finished pistons are finished in every respect, excepting the outside diameter, which is left large enough to finish to .062 oversize.

	PART NUMBER	SIZE	MODEL
Bearing Roller For Crankshaft Driveshaft Pinion Shaft	16A15	Std.	All models
	16A15-T	.0005 U.S.	
	16A15-U	.001 U.S.	
	16A15-V	.0005 O.S.	
	16A15-W	.001 O.S.	
Bushing - Camshaft in crankcase	27B20	Std.	1936-42 45 & 30-50
	27B20-T	.005 O.S.	
	27B20-U	.010 O.S.	
Bushing - Camshaft in crankcase	40455	Std.	1936 - 46 "74"
	40455-T	.005 O.S.	
	40455-U	.010 O.S.	
Bushing - Camshaft (Front) in case cover	38106	Std.	1936 - 46 all twins
	38106-T	.005 O.S.	
	38106-U	.010 O.S.	

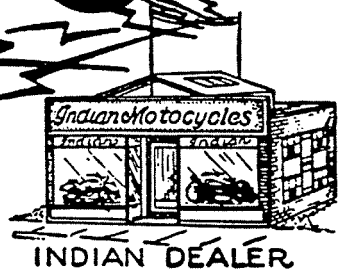
Bushing - Camshaft (Rear) in case cover	40474	Std		1936 - 46
	40474-T	.005	O.S.	all twins
	40474-U	.010	O.S.	
Bushing - Lift Shaft in crankcase	41813	Std.		1939 - 46
	41813-T	.005	O.S.	"45"-"74"
	41813-U	.010	O.S.	&30.50
Bushing - Lift Shaft in case cover	20B92	Std.		1936 - 42
	20B92-T	.005	O.S.	"45" &
	20B92-U	.010	O.S.	30.50
Bushing - Lift Shaft in case cover	22B14	Std.		1936 - 46
	22B14-T	.005	O.S.	"74"
	22B14-U	.010	O.S.	
Bushing - Connecting Rod Upper	27B2	Std.		1936 - 46
	27B2-T	.005	O.S.	"74"
	27B2-U	.010	O.S.	
Bushing - Connecting Rod Upper	27B9	Std.		1936 - 42
	27B9-T	.005	O.S.	"45"
	27B9-U	.010	O.S.	
Housing - Pinion Shaft	20B101	Std.		1936 - 42
	20B101-T	.003	O.S.	45 & 30.50
	20B101-U	.005	O.S.	
Housing - Pinion Shaft	22B19	Std.		1936 - 46
	22B19-T	.003	O.S.	"74"
	22B19-U	.005	O.S.	
Housing - Drive Shaft	40872	Std.		1936 - 42
	40872-T	.003	O.S.	"45"
	40872-U	.005	O.S.	Model 741
Housing - Drive Shaft	40871	Std.		1936 - 46
	40871-T	.003	O.S.	"74"
	40871-U	.005	O.S.	
Piston	75494	Std.		1936 - 41
	75494-T	.005	O.S.	30.50
	75494-U	.010	O.S.	
	75494-V	.020	O.S.	
	75494-W	.030	O.S.	

70



Service Shots

FOR Indian Dealers



Number 155
April 10, 1946

IDENTIFICATION OF GENERATORS

74 CU. IN. - MODELS 335 TO 346

YEAR	PART NO.	AUTO-LITE NO.	TYPE SHAFT	DIRECTION OF ROTATION
STANDARD				
1935	35Q761X	GAS-4104	Straight	Clockwise
1936 to 1939	75066	GAS-4131	Straight	Clockwise
1940 to 1946	75645	GAS-4151	Straight	Clockwise
HIGH OUTPUT - 2 STEP REGULATOR				
1936 to 1939	85960	GDE-4101	Straight	Clockwise
1940 to 1946 (except 342)	75646	GDE-4101	Straight	Clockwise
1942	75884*	GAS-4159	Straight	Clockwise

*Note: Generator 75884 GAS-4159 is equipped with a 2-step regulator, but is not a high-output generator.

FOUR CYLINDER MODELS 435 TO 442 (MAGNETO IGNITION)

STANDARD				
1935	35Q761X	GAS-4104	Straight	Clockwise
1936 to 1942	75645	GAS-4151	Straight	Clockwise
HIGH OUTPUT - 2 STEP REGULATOR				
1936 to 1939	85960	GDE-4101	Straight	Clockwise
1940 to 1942	75646	GDE-4101	Straight	Clockwise

Note: Original generators on Indian Four cylinder magneto models are the same and interchangable with generators used on the Indian Chief.

FOUR CYLINDER MODELS 435 TO 442 BATTERY IGNITION

STANDARD				
1936 to 1939	86060	GAS-4132	Straight	Counter-clockwise
1940 to 1942	75649	GAS-4152	Straight	Counter-clockwise
HIGH OUTPUT - 2 STEP REGULATOR				
1936 to 1939	86051	GDE-4102	Straight	Counter-clockwise
1940 to 1942	75650	GDE-4104	Straight	Counter-clockwise

45 CU. IN. SPORT SCOUT MODELS 635 TO 642

STANDARD				
1935 to 1939	35Q760X	GAS-4102	Straight	Counter-clockwise
1940 to 1941	76010	GAS-4166-1	Tapered	Counter-clockwise
1940 (Army)	75647	GAS-4150	Straight	Counter-clockwise
1942	76241	GAS-4170-1	Tapered	Counter-clockwise
HIGH OUTPUT				
1940 to 1942	76011	GDE-4106	Tapered	Counter-clockwise

30.50 CU. IN. JUNIOR SCOUT MODELS 535 TO 541

STANDARD				
1935 to 1937	35Q760X	GAS-4102	Straight	Counter-clockwise
1940 to 1941	76010	GAS-4166-1	Tapered	Counter-clockwise

30.50 CU. IN. MODEL 741

1941	76276	GAS-4172-1	Tapered (Locked Bearing)	Counter-clockwise

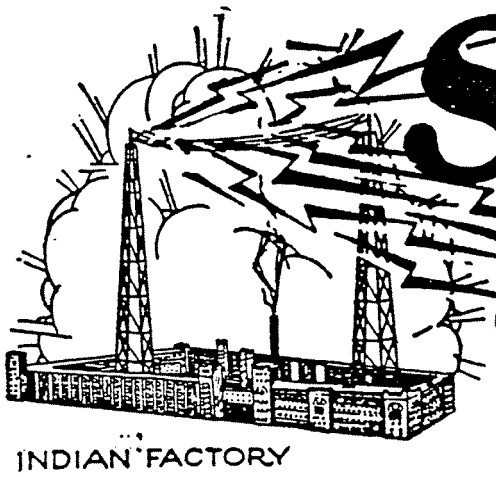
45 CU. IN. SHAFT DRIVE MODEL 841

1941 (1st 500 machines)	86732	GDE-4107	Tapered	Counter-clockwise
1941 (after 1st 500)	86772	GDE-4108	Tapered (Locked Bearing)	Counter-clockwise

45 CU. IN. STANDARD SCOUT MODEL 235 TO 237

1935	35Q761X	GAS-4104	Straight	Clockwise
1936 to 1937	75066	GAS-4131	Straight	Clockwise

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 156
April 11, 1946

HOW TO ADJUST AND BEND THE STANDARD 346 HANDLEBAR

FOR PCLICE RIDING POSITION

When a police officer desires a more straight-up riding position than is possible within the limits of the handlebar serration adjustment, the standard 346 handlebar can be bent to bring the grips higher and back closer to the saddle. This will give a riding position such as has only previously been possible with special police handlebars.

Proceed as follows:

1. Place the motorcycle on the center stand. Adjust the handlebars in the shock mount clamps so that the end of the grips are 39 1/2" above the floor. This dimension is for motorcycles with 16" wheels. If the motorcycle has 18" wheels, the ends of the grips should be 40 1/2" above the floor.

   Note: The handlebar must be positioned 1/8" away from the steering damper knob or hand-wheel before taking any measurements.

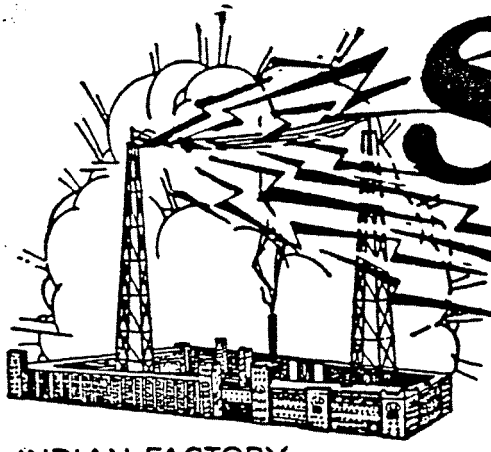
2. Now bend the handlebar at the bend closest to the shock mount back towards the saddle 3 1/2". (You will actually be straightening this bend.)

With each side of the handlebar bent back 3 1/2", the distance between the ends of the grips should be 32 1/2". Re-adjust the bars so the grips are 39 1/2" (or 40 1/2") above the floor.

Now lay a straight-edge across the ends of the grips and measure to the tip of the saddle bracket alemite fitting. This distance should be 9 1/2".

73.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

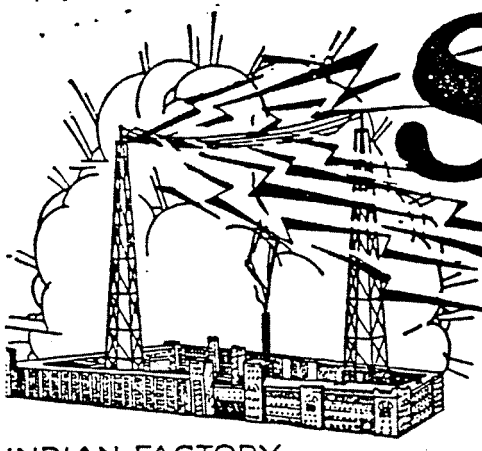
Number 157
May 24, 1946

Precision Cylinder Gauge Now In Stock

We now have in stock for immediate shipment, precision cylinder gauges, made by Ames, which test all cylinders from 2 3/16" to 5 7/16" in diameter for straightness and roundness. This gauge comes complete with a "setting tool handle" having a series of accurately ground washers in various thicknesses which are used to set the gauge for the particular cylinder. In the cylinder, the pointer on the graduated dial plainly indicates any taper or out-of-round in thousandths of the inch. The gauge shows exactly what size replacement piston to use. Shows your customer, without doubt, when his cylinders need reboring or refinishing, and allows you to do more precise work.

This particular gauge is recommended by our Service Department (see M.M.R., Number 619, April 9, 1945) and is now readily available. Order on your next part order. The Number is 46T2426. Price $15.00.

WALTER BROWN
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 158
May 16, 1946

CORBIN SPEEDOMETER SERVICE INFORMATION

If repairs cannot be made in your service station, we recommend that the instrument be sent to our Repair Department, Corbin Screw Division, New Britain, Connecticut, with your purchase order covering the Speedometer. We will put the instrument in good order and return it to you with our bill for new parts used and labor required.

If your customer must have a speedometer to be used while repairs are being made at the factory, then it is advisable to carry service heads which can be loaned as required.

80-mile, 100-mile, and 110-mile max hand service heads are available at a special net price of $4.50 each and are marked "Service Head".

REMOVING AND REPLACING RING, GLASS AND BEZEL

Care should be taken when replacing the ring, glass and bezel to avoid any buckling of the dial by too great pressure. This will cause the dial to bind the maximum speed hand or odometer dials.

After replacing the ring, glass and bezel, check up on the running of the governor as it sometimes happens that the adjustment of the bearing is disturbed so that the shaft binds in the bearings. The governor shaft should turn freely with the least possible amount of play.

LUBRICATION

Unless it is necessary to clean the head of the speedometer due to extremely long service, or a broken glass, lubrication should not be necessary. If the odometer and inside parts need to be cleaned, rinse thoroughly in gasoline. When dry, lubricate as follows:

Use Vaseline only. Apply a small amount to the following parts only.....

A. Ball Bearings at either end of the governor shaft.

B. The worm and gear on the governor shaft for driving the odometer.

C. The lower and upper bearings of the odometer driving pinion. This is a vertical pinion supported at the lower end in the cup and at the upper end in the odometer.

D. The heads of studs S-65, S-134 ratchet pawl guide and governor springs and screws, but not on governor shaft.

REMOVING AND REPLACING SPEEDOMETER HAND

1. Raise the end of the hand over the stop pin at zero and bring it downward as far as it will go marking this point on the outside edge of the dial.

2. Remove hand and dial.

3. When replacing the hand, place it over the shaft in the center with a light pressure so as to turn with some friction on the shaft but without a pressure so tight that it will not turn.

4. Rotate the hand to the left, lifting the end over the stop pin and bring it downward until over the mark to take up all backlash.

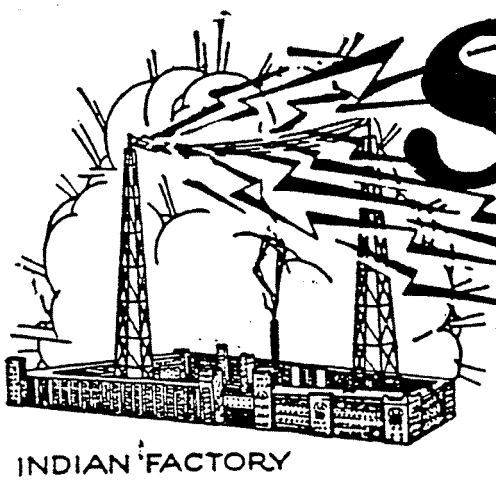
5. Put on and tighten small nut using small socket wrench. If speedometer is of the older type without nut; fix hand in position by light blow using hollow punch.

6. Lift the end of the hand over the top of the stop pin to the upper side.

Service Information supplied by Corbin Speedometer to

INDIAN MOTOCYCLE COMPANY

WALTER BROWN
Service Manager



Service Shots

FOR Indian Dealers

Number 159
June 6, 1946

SPEEDOMETERS

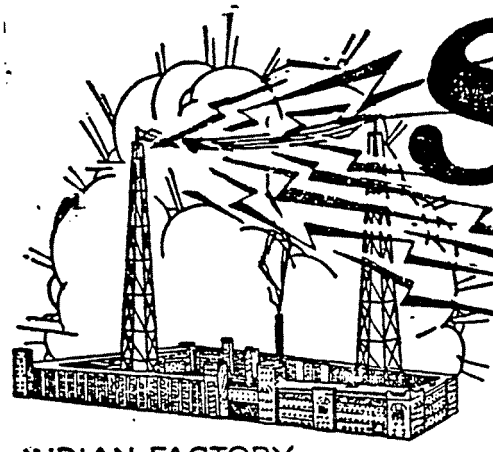
(To Clarify Service Shot #158)

The information published in Service Shot #158 was furnished by our speedometer supplier, the Corbin Screw Division, New Britain, Connecticut.

All servicing of speedometers is done by Corbin and when repairs are required, the speedometer should be sent to Corbin and not to Indian Motocycle Company.

Corbin Screw Division has available 80 mile, 100 mile, and 110 mile maximum hand service heads which may be used when the customer requires a speedometer while his is being repaired. These heads may be obtained from Corbin at a special net price of $4.50 and are marked "Service Head". Send any orders to Corbin Screw Division and not to Indian. No speedometer "Service Heads" are in stock at Indian!

WALTER BROWN
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

Number [illegible] INDIAN DEALER
July 22, 1946

MODEL 346 CLUTCH ASSEMBLY

The clutch assembly on the model 346 has been changed to assure more complete disengagement.

The clutch make-up consists of:

6-	25-B-94	Driver plate, molded, plain	1/8"
2-	22-B-154	Driver plate, molded, grooved	3/16"
6-	22-B-33	Driven plate, steel	1/16"
1-	387004	Main Shaft Driver	

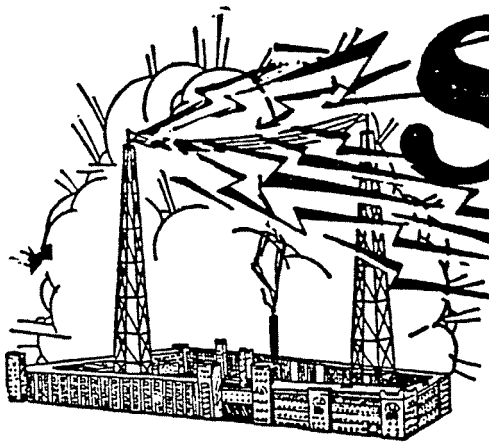
The clutch plates are assembled into the clutch sprocket in the following order:

1-	28-B-154	Driver plate 3/16" molded with grooves. (Assemble with the grooves facing out.)
2-	22-B-33	Driven plate - steel
3-	25-B-94	Driver plate, 1/8" molded
4-	22-B-33	Driven plate - steel
5-	25-B-94	Driver plate, 1/8" molded
6-	22-B-33	Driven plate - steel
7-	25-B-94	Driver plate, 1/8" molded
8-	22-B-33	Driven plate - steel
9-	25-B-94	Driver plate, 1/8" molded
10-	22-B-33	Driven plate - steel
11-	25-B-94	Driver plate, 1/8" molded
12-	22-B-33	Driven plate - steel
13-	25-B-94	Driver plate, 1/8" molded
14-	28-B-154	Driver plate, 3/16" molded - grooved. (Assemble with the grooves facing out.)

The new clutch assembly complete can be used on all 45 and 74 models from 1935 to 1945, and model 741.

Do not mix main shaft drivers, part numbers 22-B-43, and 387004 in your parts stock as part number 387004 is shorter and must be used only as part of the above clutch assembly.

Walter Brown



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 162
August 26, 1946

REPAIR SERVICE

Indian Motocycle Company realizes that it has a Service responsibility and obligation to Indian dealers and riders, and we are aware that we must either recondition certain motorcycle parts here, or supply you with the necessary instructions, tools, and equipment to do the jobs in your own service shops.

At present, repair service is being carried on at the factory in the regular production departments, and in order that our factory production personnel may devote their full time and entire facilities toward increasing production of new motorcycles and spare parts, our Service Department is beginning a program which will make possible full repair service facilities in the field.

Arrangements are being made to make available to dealers, the necessary parts, tools, equipment and instructions, so that you may perform reconditioning operations in your own service shop or send them to some key dealer in the territory where facilities will be available.

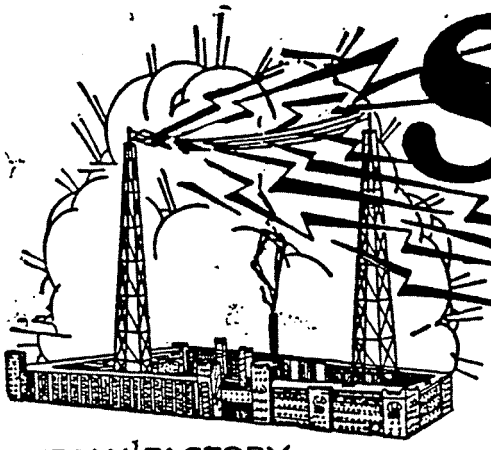
This program of localized service will make for quicker and more efficient handling of repair work for dealers and riders, with the same high quality that the factory is giving now.

Right now our Service Department is loaded to capacity and needs a break so that it can apply its full efforts towards putting this new program into operation. We are asking you to cooperate with us by handling all the jobs you possibly can in your own service shop or by making arrangements with other Indian dealers or repair shops in your territory who are equipped to do the work you need. Please do not send any parts to us for reconditioning unless you definitely cannot find any other way to get it done.

Your cooperation will be greatly appreciated as it will be another step towards increasing the production of new motorcycles and spare parts.

INDIAN MOTOCYCLE COMPANY

Walter Brown
Service Manager



Service Shots

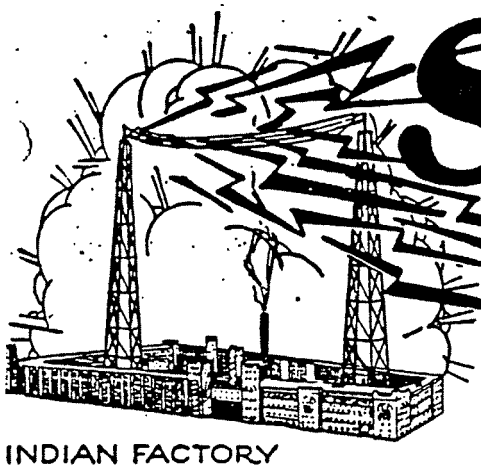
FOR Indian Dealers

Number 163
September 30, 1946

We have been advised by the Corbin Speedometer people that they have discontinued their program of furnishing special "Service Heads" for Corbin motorcycle speedometers to Indian dealers. These "Service Heads" were formerly available at a special price for use while the motorcycle rider's speedometer was being repaired. (see Service Shot No. 158)

Repair Department, Corbin Screw Division, New Britain, Connecticut still offers speedometer repair service.

Walter Brown
Service Manager



Service Shots

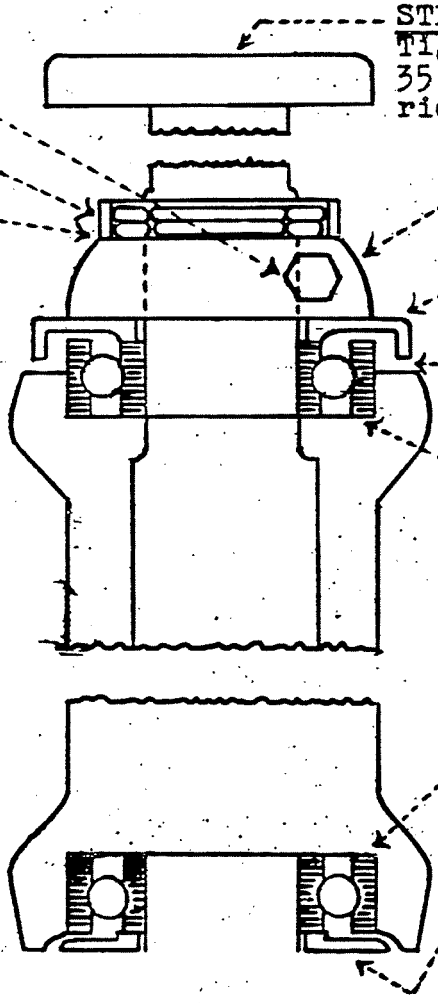
FOR Indian Dealers

Number 165
October 21, 1946

MODEL 346 STEERING HEAD BEARING ASSEMBLY AND ADJUSTMENT

TO ADJUST:

1. Loosen bracket pinch bolt.
2. Loosen and remove fork stem lock nut.
3. Tighten fork stem nut firmly to make sure that bearings are drawn in place.
4. Back off fork stem nut 1/6 of a turn and tap end of fork stem. There should be a slight drag when the front end is turned from side to side.
5. Tighten lock nut and pinch bolt.



STEERING DAMPER WHEEL
Tighten when riding above 35 MPH. Loosen when riding below 35.

FORK STEM BRACKET
Clean paint and dirt from upper and lower surfaces at assembly.

CUPPED WASHER -
Must not touch frame head casting. There should be .015" clearance.

HEAD BEARING-UPPER
#189005. Assemble with the wide section of the ball race facing down. Make sure the bearing slots are clean when assembled and tap in place firmly.

HEAD BEARING-LOWER
#189010. Assemble with wide section of the ball race facing up.

LOWER BEARING WASHER
Assemble with the shoulder facing up, flat surface down.

IMPORTANT:

1. A loose steering head bearing adjustment will affect the handling of the machine at speeds above 35 MPH. The front end will be unstable and difficult to control on rough roads and on turns. It will have a tendency to weave.
2. A tight steering head bearing adjustment will affect the handling of the machine at low speeds. It will be difficult to ride the machine in a straight line. It will have a tendency to sway. There also is danger of the ball bearings pitting the bearing cone and race when it is adjusted too tight.

Walter Brown
Service Manager

Number 166

October 28, 1946

346 MODEL FORK SHACKLE CROSS SHAFT ADJUSTMENT

The fork shackle cross shafts on new motorcycles should be inspected and adjusted if necessary on the 500 and 1000 mile service checks.

TO ADJUST:

1. Loosen cross shaft lock nuts at both ends.

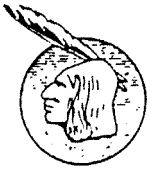
2. Free the left side shackle by tapping the shaft lightly to break it loose from the taper.

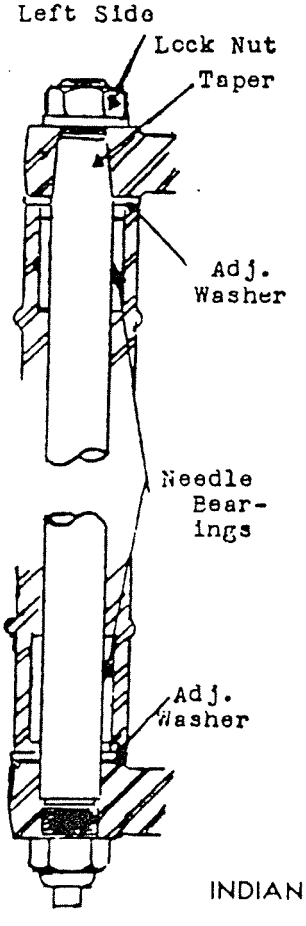
3. Adjust the clearance by turning the shaft, from the right end, a quarter turn at a time until the adjusting washer "just" turns free. (The cross shafts are threaded into the fork shackles on the adjusting side.)

   <u>There should not be more than .005" or less than .001" clearance</u> at the knurled adjusting washers.

4. After adjustment is made, tighten the left side shackle back onto the tapered shaft and recheck the clearance.

5. Tighten lock nut on right end of cross shaft.





IMPORTANT NOTE:

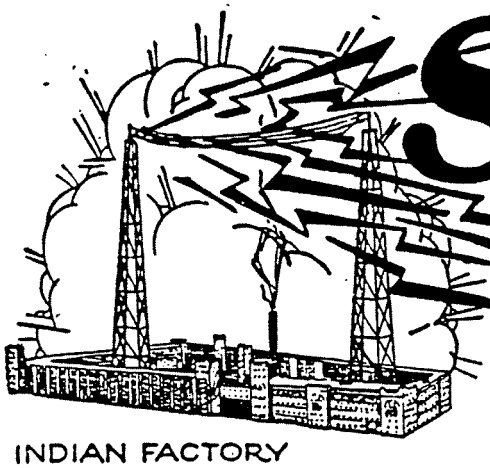
1.

Fork shackle cross shafts with over .005" side clearance at the knurled washers will cause the fork to shift from one side to the other when the front end is turned from side to side. When this shifting action takes place while riding around turns, the front end has a tendency to feel unstable.

2.

Fork link cross shafts that are adjusted with less than .001" clearance or too tight at the knurled washers will retard the spring action and result in a hard riding front end.

INDIAN MOTOCYCLE COMPANY



INDIAN FACTORY

Service Shots

FOR Indian Dealers

INDIAN DEALER

Number 167
October 28, 1946

TIRE PRESSURES AND TREAD WEAR

TIRE PRESSURE RECOMMENDATIONS: SOLO:

4.00 x 18	Front - 18 pounds	Rear - 20 pounds
4.50 x 18	Front - 22 pounds	Rear - 22 pounds
5.00 x 16	Front - 16 pounds	Rear - 18 pounds

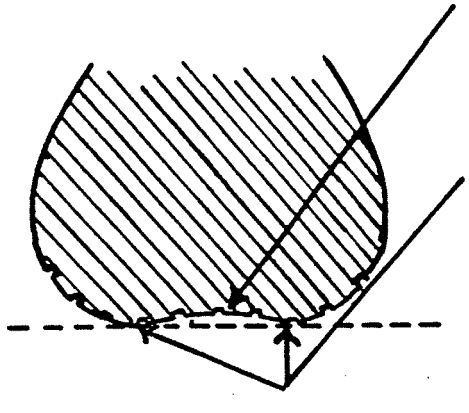
These tire pressure recommendations are made taking into consideration that the motorcycle will be ridden under normal conditions with an average load being carried. When heavier than average loads are being carried, the pressure may be increased to take care of the extra weight. When the motorcycle is being ridden at speeds above normal, the tire pressures on the 5.00 x 16 tires may be increased 2 pounds above the recommendations to obtain more stable handling on turns.

TREAD WEAR:

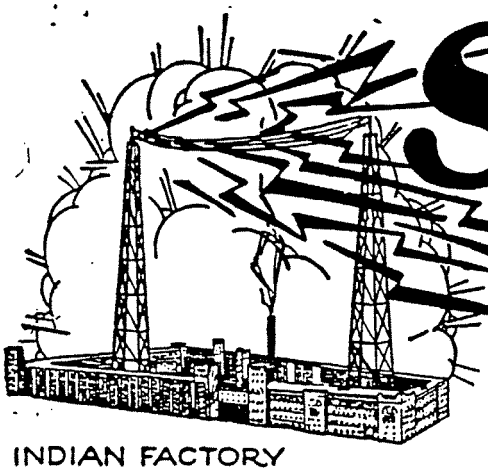
The air pressure will influence tire wear. Low air pressure will cause the front tire tread to wear in such a pattern that there will be a high ridge in the center, particularly on the Goodyear Eagle and Firestone Champion tread design. When a front tire tread has been worn to the pattern illustrated and the tire pressure is increased to the recommendations, there is very little tread area in contact with the road surface (see illustration 2) and the result will be a very unstable front end.

1. Tread Wear with Tire Under-Inflated 5.00 x 16 tires that are ridden with 12 to 14 lbs. air pressure will take this shape.

   Low air pressures will cause the front end to weave on turns.



The center rib will be pushed up from the weight of the machine and rider. This rib will not wear as fast as the others. The two ribs on either side of the center rib will wear rapidly because of the side motion or wiping action as they enter and leave the road surface.



Service Shots

FOR Indian Dealers

Number 169
December 9, 1946

INSTRUCTIONS ON HOW TO USE "PARTS RETURNED FOR FACTORY ADJUSTMENT TAG" (FORM M-709)

1. This TAG is to be used when returning damaged parts from new Indian motorcycles for examination and decision under the Indian warranty.

2. It is also to be used when returning "New Stock Parts" found to be defective or damaged in shipment. (It is not to be used for forks and frames sent in for repairs.)

3. When sending in damaged or defective "New Stock Parts" for credit or replacement, you must list the original invoice date and number. Therefore, it is necessary for you to save and file the invoice slips received in each shipment of parts.

4. We absolutely will not make a replacement or issue a credit unless we receive TAG M-709 completely filled out with each shipment of material.

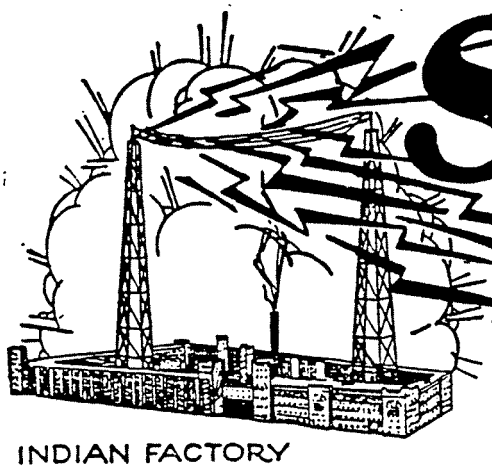
5. If this TAG is not received, the material will be held fifteen days and then disposed of.

6. Transportation charges must be prepaid on all parts sent to the Factory for inspection.

TO ORDER!

This tag (M-709) is furnished without charge. You may request a supply at any time according to your needs. Order on Advertising Form M440.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 170
December 9, 1946

INSTRUCTIONS ON HOW TO USE "PARTS RETURNED TO FACTORY" (FORM M-710)

1. One or more of these forms must be filled out and mailed to the Factory whenever any part or group of parts is returned, either for repair, replacement or credit.

2. When a "New Stock Part" is returned for credit or exchange due to an error in ordering or in filling the part order, you must give the original Factory Invoice Date and Invoice Number on Form M-710. Notice: Permission must be received from Parts Manager Earle Robbins before returning any "New Stock Parts".

3. When forks and frames are sent in for repair simply give:-

   (a) the model of the machine and the description of the part, and
   (b) the service work you want done.

4. Do not combine parts returned for different reasons on the same form, but fill out separate forms:-

   (a) For fork and frame repair.
   (b) For credit or exchange.
   (c) For replacement or adjustment.

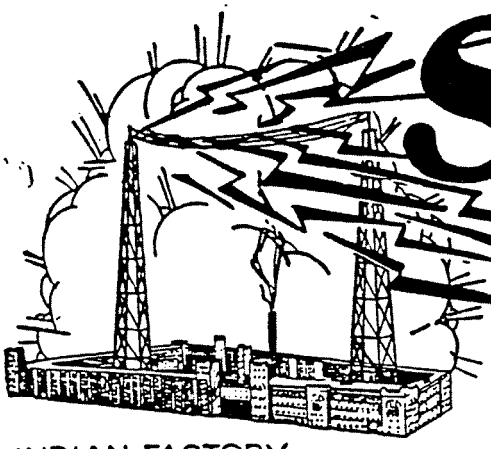
5. A "Parts Returned For Factory Adjustment" tag (Form M-709) must be sent in along with the "Parts Shipped To Factory" form on defective and damaged parts. The tag stub is to be attached to the part.

6. Transportation charges must be prepaid on all defective parts sent to the factory for inspection.

TO ORDER!

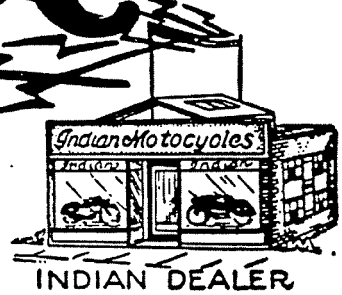
This form (M-710) is furnished without charge. You may request a supply at any time according to your needs. Order on Advertising Form M440.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



Number 172
February 24, 1947

INDIAN FOUR MAIN BEARING LINE REAMER

Tool No. 31-T-847 $47.45 Net

As result of a survey made last summer, we have contacted several leading tool companies and have arranged for the manufacture of a main bearing line reamer for the Indian Four.

This reamer will handle the fitting of new crankshafts or crankshafts in good condition as well as crankshafts which have been reground to .010" or .020" undersize.

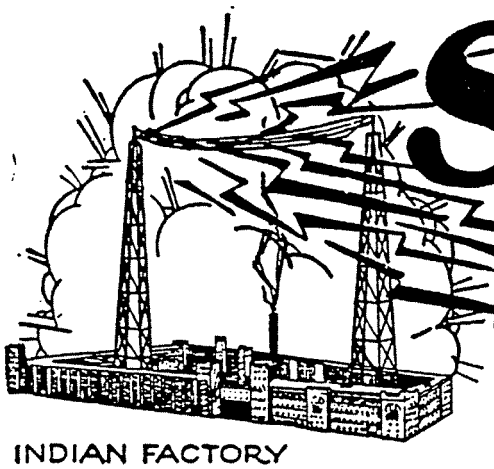
The main bearings supplied on part orders have enough stock in them to clean up at .020" undersize.

The saving of time in fitting the main bearings and the assurance of the proper alignment to produce a perfect job will pay for the reamer on the first few jobs.

Deliveries will be made in six to eight weeks after receipt of your order.

Please fill in your name and address on the attached order blank.

WALT BROWN
Service Manager



Service Shots

FOR Indian Dealers

Number 173
April 14, 1947

SERVICE TOOL

A new Tool, No. 46T1635 Spring Frame Compression Tool, for servicing the rear spring frame assemblies on Models 340 to 347, is available.

This Tool is used with No. 42919 Spring Frame Companion Tool to draw the slipper rod down when removing the slipper bracket from the frame and also to compress the lower spring while disassembling and assembling the slipper bracket assembly.

Using this Tool makes the removal and servicing of the spring frame units a simple and easy operation and does away with the need of an arbor press.

Both of these Tools are listed on the attached part order form. Cross off the Companion Tool if you have one.

Walt Brown
Service Manager

S E R V I C E N O T I C E

INDIAN FOUR MAIN BEARING LINE REAMER

TOOL NO. 31-T-847

We are preparing to get into the actual production of a newly designed Indian Four Main Bearing Line Reamer set. Our Tool and Methods department has developed this new Reamer along with the additional cutters and pilot sleeves necessary to do a quick, precision job of reaming Indian Four main bearings to our standard size, and to .010" under, and to .020" under.

Indian Four bearings must be accurately line-reamed if any major overhaul on this engine is to be completely satisfactory, and this tool will save enough time over hand scraping to pay for itself on the first few jobs you do.

We know that it is absolutely necessary and profitable for a dealer, who has any number of Indian Four motorcycles in his territory, to have one of these Reamers, and this is your opportunity to equip your Service Shop to handle this work.

Enclosed is an Order Form for one of the Indian Four Reamers. We will be able to accept your order for one of these Reamers up until the 15th of May. These reamers are being specially built and we must guarantee the manufacturer at least a minimum number of orders at that time to offer these tools to you at such a low price! Production will be for a definite number of these reamers so order now as this offer will not be repeated again for some time.

Walt Brown
Service Manager

April 28, 1947

87.

RECONDITIONING INDIAN FOUR CONNECTING RODS

The following dealers have advised us that they will accept Indian Four connecting rods from other Indian dealers for reconditioning.

As our production connecting rod department here at the factory can no longer accept rods for reconditioning, we suggest you make arrangements with the Indian dealer listed who is nearest you to handle your Indian Four connecting rod reconditioning work.

Delivery time runs from three to 15 days.

NAME AND ADDRESS

Indian Motorcycle Shop
622 East Grand Avenue
Des Moines, Iowa

Indian Motorcycle Sales & Service
1014 East 6th Street
Topeka, Kansas

Rae Watson's Sport Shop
257 Wellington Street
London, Ontario

George Pasby Auto Repair
409 East Broadway
Enid, Oklahoma

Appleby Indian Company
304 Cherry Avenue, N. E.
Canton, Ohio

McWilliams Indian Company
R. D. #5
Greenville, Pennsylvania

Indian Motorcycle Sales & Service
1601 Arcade Avenue
Shively, Kentucky

NAME AND ADDRESS

S. B. Lynum
1516 West 26th Street
Sioux Falls, South Dakota

Hap Alzina
3074 Broadway
Oakland, California

Philadelphia Indian Sales
1635-37 Hunting Park Blvd.
Philadelphia, Pennsylvania

Motorcycle Service Co.
1014 Ohio Street
Wichita Falls, Texas

Portage Indian Sales & Service
133 West Elm Street
Kent, Ohio

Pratt's Indian Sales
500 West Douglas Avenue
Wichita, Kansas

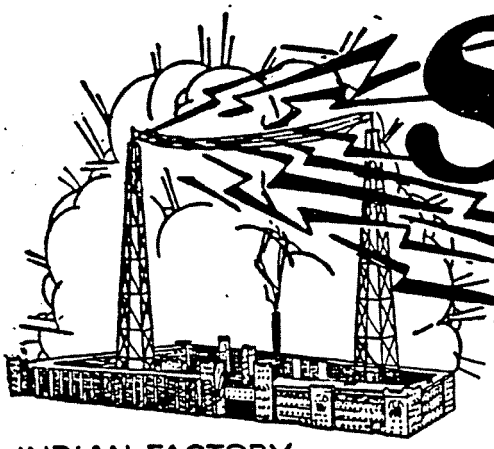
Egeberg Cycle Co.
1821-23 Riverside
Minneapolis, Minnesota

Indian Motorcycle Sales
1775 East 30th Street
Cleveland, Ohio

We wish to extend our sincere thanks to the above dealers for their co-operation and efforts in offering this Indian service.

April 28, 1947

Walt Brown
Service Manager



INDIAN FACTORY

Service Shots

FOR Indian Dealers

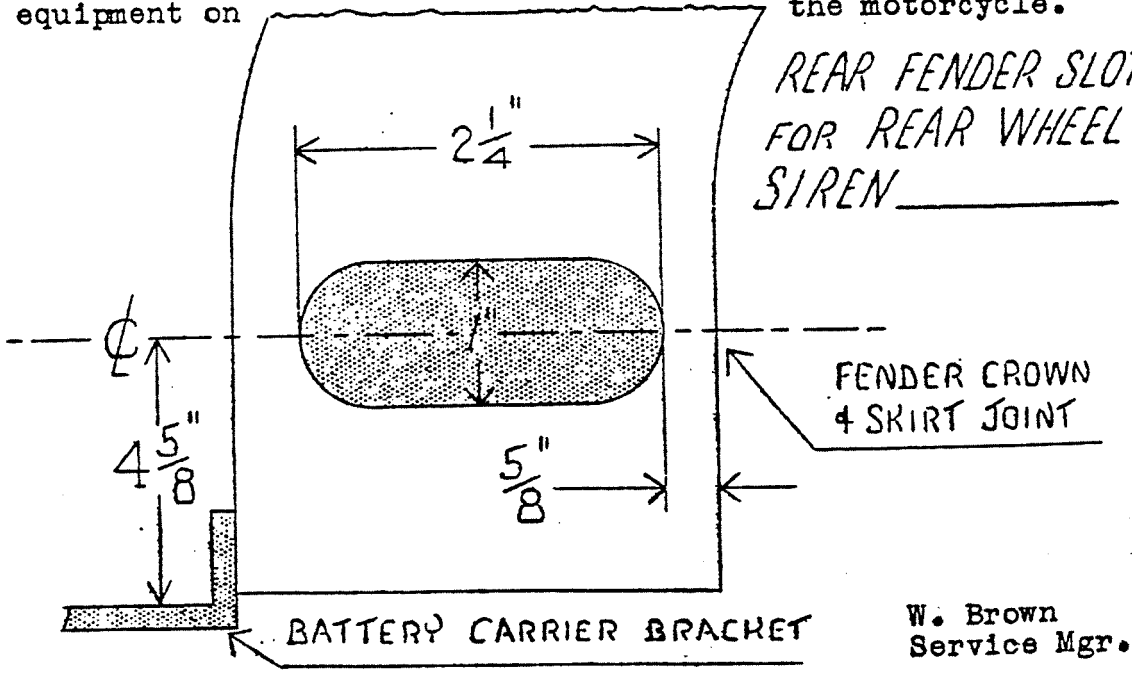
INDIAN DEALER

April 28, 1947

REAR WHEEL SIREN INSTALLATION

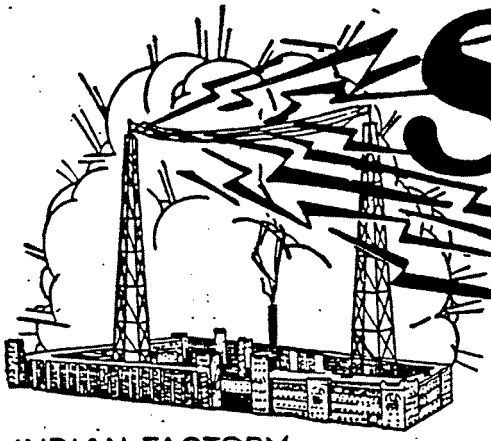
To install Rear Wheel Siren (Part No. 103032) on Model 346 or 347:

1. Remove the tool box.
2. Slot the rear fender as shown on the sketch.
3. Mount the siren on the frame. If the motorcycle is equipped with rear safety bars, the left bar to frame bushing must be removed. The siren bracket extension piece takes the place of the bushing and is held in place by the safety bar stud. When installing the bracket clamp, be sure there is clearance between the clamp and the fender skirt. The back side of the clamp should be reduced if there is contact between the fender skirt and the clamp.
4. Mount the pedal bracket using the bolts which are furnished with the siren. The shorter bolt assembles in the lower bracket hole to screw into the transmission case and the longer bolt assembles in the center bracket hole with a nut and lockwasher behind the transmission case flange.
5. Adjust the control cable to give the longest travel without contact between the fan shaft pulley and the fender when the siren pedal is released. To increase the clearance between the fan shaft pulley and the fender, turn the casing adjusting stop to the left.
6. Relocate the tool box in the most practical position depending on the equipment on the motorcycle.



W. Brown
Service Mgr.

8



Service Shots

FOR Indian Dealers

Number 175
June 9, 1947

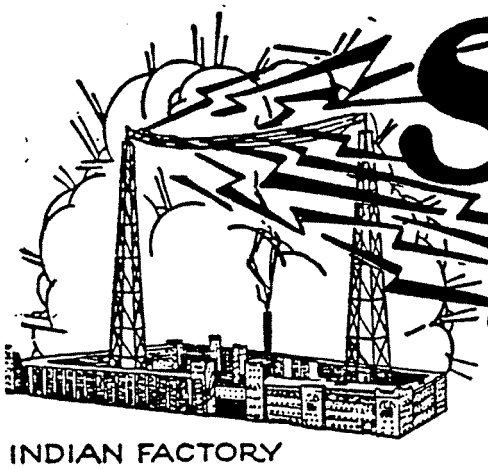
GREASING WHEEL BEARINGS

346-347 wheel hub and brake drum bearings which are not provided with grease fittings should be cleaned and repacked with high melting point grease (Valvoline No. 2½ or its equivalent) whenever the wheels are removed.

When steam, air or water pressure are used for cleaning the motorcycle, the wheel bearings must be lubricated at 2000-mile intervals to prevent damage to the bearings, due to washing out of the lubricant and to remove any foreign matter which may have been forced in by the pressure cleaning.

All wheel bearings of this type must be lubricated at intervals of 2000 to 6000 miles, depending on the type of service, road and weather conditions under which the particular motorcycle is operated.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

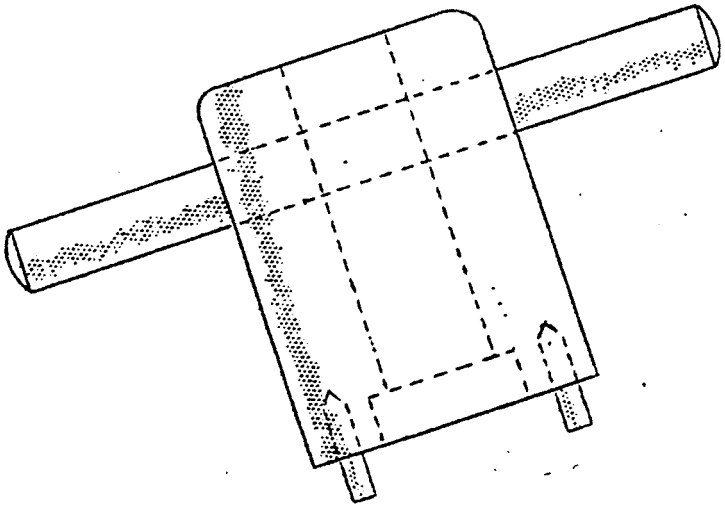
Number 176
June 16, 1947

FRONT BRAKE DRUM BEARING RETAINER TOOL PART NO. 47-T-663

A new tool is available for removing and installing the front brake drum bearing retainer on Models 346 and 347.

The tool is designed to remove and install the bearing retainer, with the bearing support in the bearing to act as a guide for the tool. This allows much easier removal of the bearing retainer and also guides the felt washers and retainers when the brake drum is being assembled.

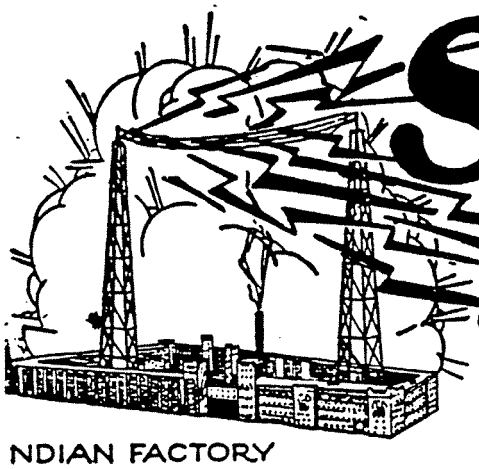
This tool is essential when servicing the brake drum at the 6000 mile lubrication period, and will save its cost in time saved on the first few jobs.



Order on Part Order Blank under No. 47-T-663.

Price is $1.50 NET.

Walt Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 177
June 23, 1947

STRIPPED THREADS

The best solution for stripped threads, in either aluminum or cast iron, is the installation of a HELI-COIL THREAD INSERT.

The insert is placed in the stripped hole after it has been enlarged with a special tap and allows the use of the original size screw. This is necessary in many places, as the use of an oversize screw weakens the parts, or there is insufficient clearance for the screw or head.

These inserts are used by many dealers and found to be a satisfactory method of repairing stripped threads.

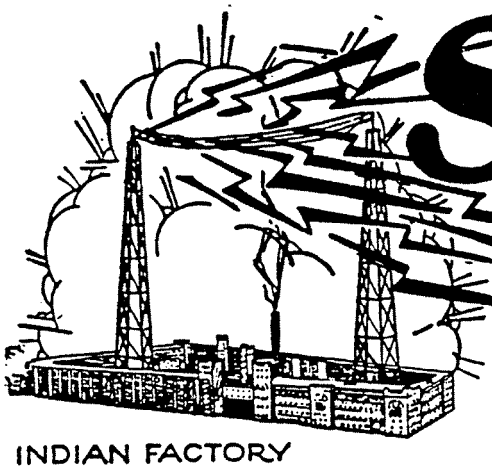
Two assortments of tools and inserts for Indian dealers have been suggested by the Aircraft Screw Products Company. This company advises us that these assortments are available from their dealers in most cities, and also that their dealers maintain an installation service for the convenience of anyone who does not have enough of this work to need the kit in his shop.

We suggest that you contact the Automotive Equipment Jobber in your vicinity for the necessary tools and inserts. We will furnish the name of the HELI-COIL distributor in your locality at your request.

The attached sheets outline the HELI-COIL system for replacing stripped threads and offer two suggested Indian Assortments.

Walter Brown
Service Manager

92.



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 178
June 23, 1947

INDIAN FENDER AND TANK REPAIRING AND ENAMELING

For New England and New York State dealers:

Chet DePaoli, Indian dealer in Torrington, Connecticut, will accept Indian fenders and tanks for repairs and enameling for you.

Drop Chet a line and he will supply you with full particulars. His address is:

Chet's Indian Sales
R.F.D. #1, Winsted Road
Torrington, Connecticut

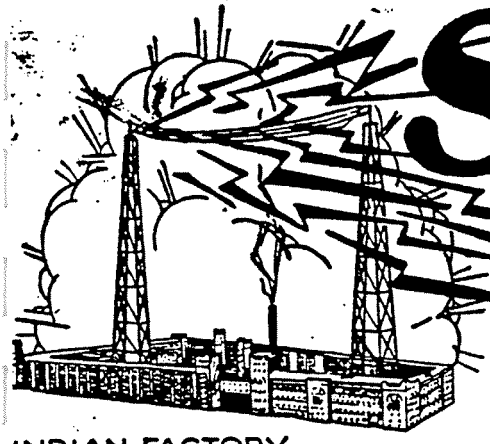
For Middle Atlantic dealers:

Edgar J. Kauffman will handle your work. Ed is an Indian rider and has his own auto body and fender shop.

For further information, write him:

Edgar J. Kauffman
Christiana
Pennsylvania

Walt Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 179
August 4, 1947

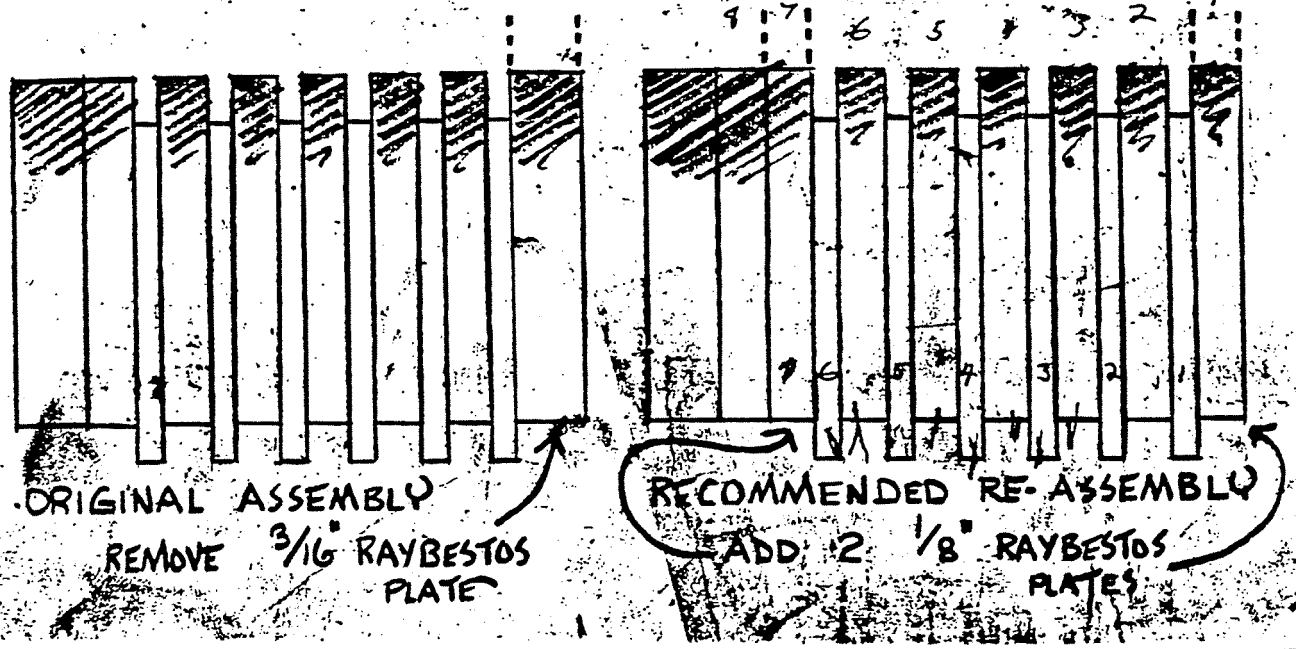
TO OVERCOME SLIPPAGE AND CHATTER OR GROAN IN 346-347 MODEL CLUTCHES

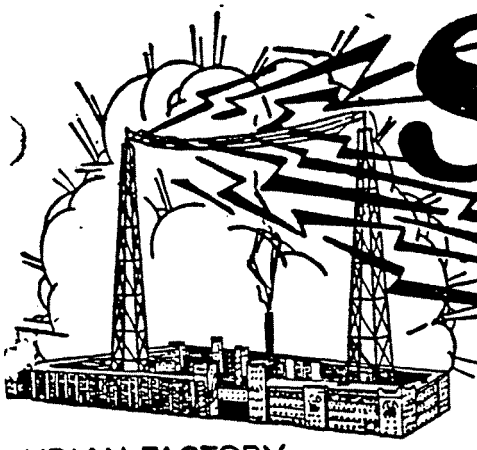
Slippage causes clutch chatter or groan. When the Raybestos plates wear, spring pressure becomes less, allowing the clutch to slip. In order to bring the spring tension back to its original pressure, it is necessary to increase the thickness of the clutch plate and disc assembly.

This can be done by removing the 3/16" Raybestos plate (28B154), which is first assembled in the clutch, and replacing it with one 1/8" Raybestos plate (25B94). Assemble a 1/8" Raybestos plate and a steel disc until the pack consists of seven Raybestos plates and six steel discs. Now, add another 1/8" Raybestos plate and assemble the 3/16" Raybestos plate last. This assembly eliminates one 3/16" plate, and it uses two additional 1/8" plates to get an increase of 1/16" on the spring pressure.

The illustrations show the original assembly and the recommended use.

NOTE: Remove sludge and glaze from surface of Raybestos plates with wire brush before they are assembled.





Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 180
August 18, 1947

HOW TO ADJUST THE BEAM ON SPOTLIGHT #561004

The beam may be adjusted by removing the lens and sliding the bulb socket in or out, with the reflector in place, until the desired beam of light is secured.

These spotlights are equipped with a 21 candle-power bulb; however, a 32 candle-power bulb may be inserted if more light is desired.

In the very near future, all spotlights supplied will contain a 32 candle-power bulb and the beam will be set and fixed in a position for best lighting effect.

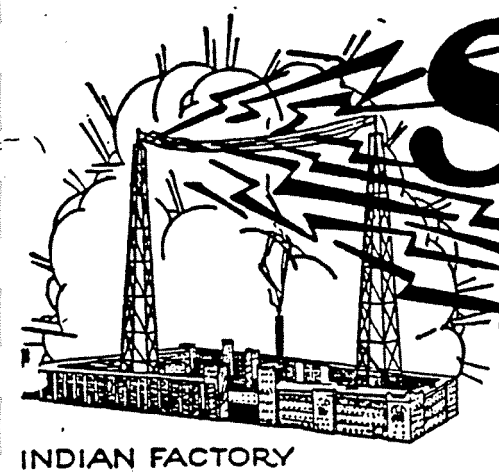
ASSEMBLY OF REAR CHAIN CONNECTING LINKS ON ALL 74" SPRING FRAME MODELS 340-348

The spring clip on the rear drive chain connecting link is assembled on the inside rather than on the outside, because of the limited amount of clearance between the kickstarter crank stop and the fender to spring frame slipper bracket bolt.

When the chain comes loose, there is a possible chance that the chain connecting link clip will strike against the head of the bolt or kickstarter stop and get knocked off.

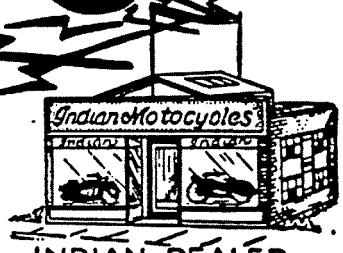
Make sure when you reassemble the rear drive chain that you assemble the connecting link with the clip on the inside.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



INDIAN FACTORY

INDIAN DEALER

Number 181
October 20, 1947

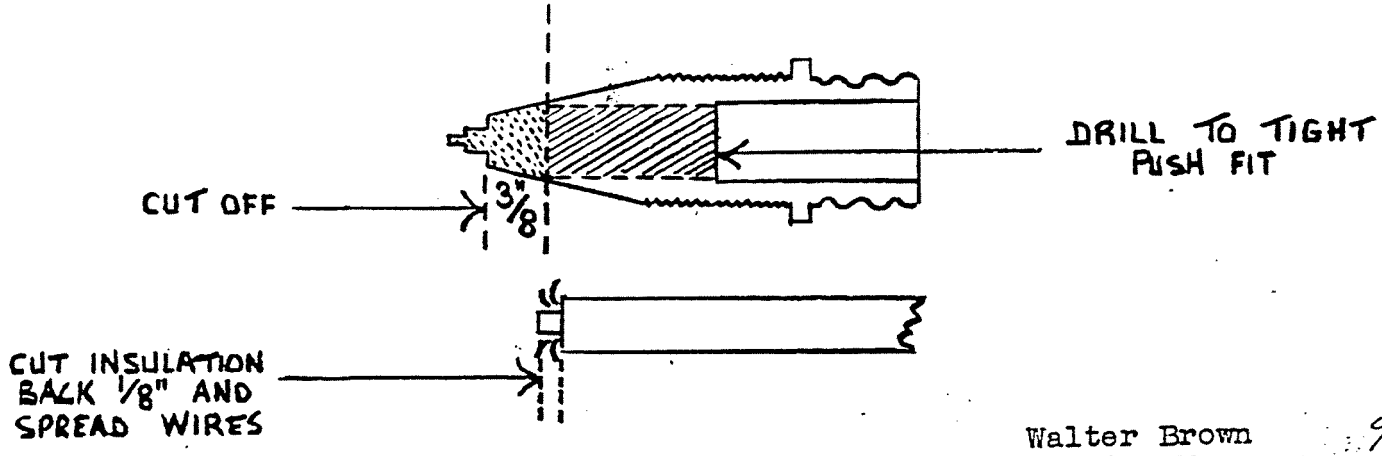
CHEK 125 c.c. - MODEL A

When the engine fails to start, and when you find that the spark plug keeps fouling, it is usually because there is a high tension leak in the spark plug wire spring contact holder (Part No. 200-02/23). This is the hard rubber or bakelite part that screws into the left side of the crankcase near the magneto.

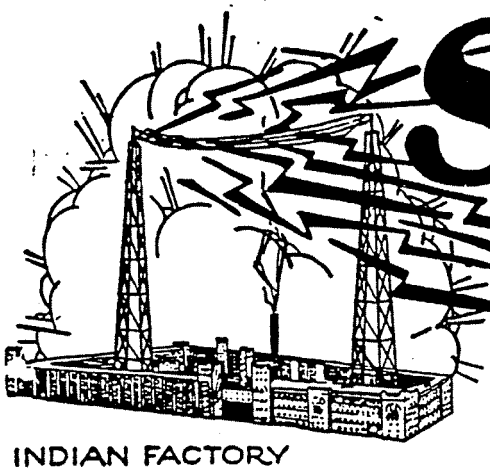
This high tension leak can be eliminated by making a direct contact with the high tension wire at the terminal. To do this, first cut off the lower portion of the contact holder at a point 3/8" up from the lower edge. Then drill a hole down through the remainder of the holder to a size which will give a tight push fit for the wire.

It will be necessary to cut and spread the spark plug wire as shown also. Assemble the holder nut, holder casing and rubber ring on the high tension wire. Push the wire through the contact holder, screw the contact holder in the crankcase, push wire into place firmly, push the rubber ring and holder collar down, and tighten the holder nut.

The spark plug wire forms the insulation rather than the contact holder and, in most cases, you will find that the engine will start readily and no further spark plug fouling will be experienced.

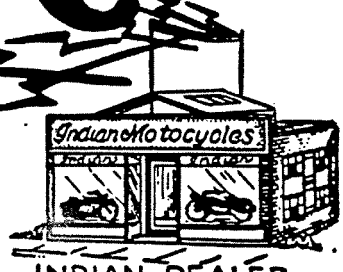


Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



Number 182
November 3, 1947

SPARK PLUGS FOR BONNEVILLE ENGINES

The 347 model Bonnevilles were equipped with Indian "C" spark plugs for normal or average motor operation. However, these spark plugs may not stand up under high speed and severe service on long trips.

When it is found that Bonneville engines equipped with "C" plugs do not perform as they should at top speed, or when they do not reach the top speed that is expected of them, you should try a "colder" plug.

The Indian "D" usually is found to be satisfactory, however it may be necessary to install 59T or Champion JA-11 spark plugs to take care of unusual conditions.

The Indian "D" is used in "hot" motors, such as the Savannah, Daytona and Bonneville models, especially when they are operated at high speed.

The Indian 59T and Champion JA-11 plugs are used in racing engines, and in Savannah, Daytona and Bonneville road machines that are ridden at continuous high speeds. These spark plugs are classified next to the Indian "D" in the heat range as "colder" plugs.

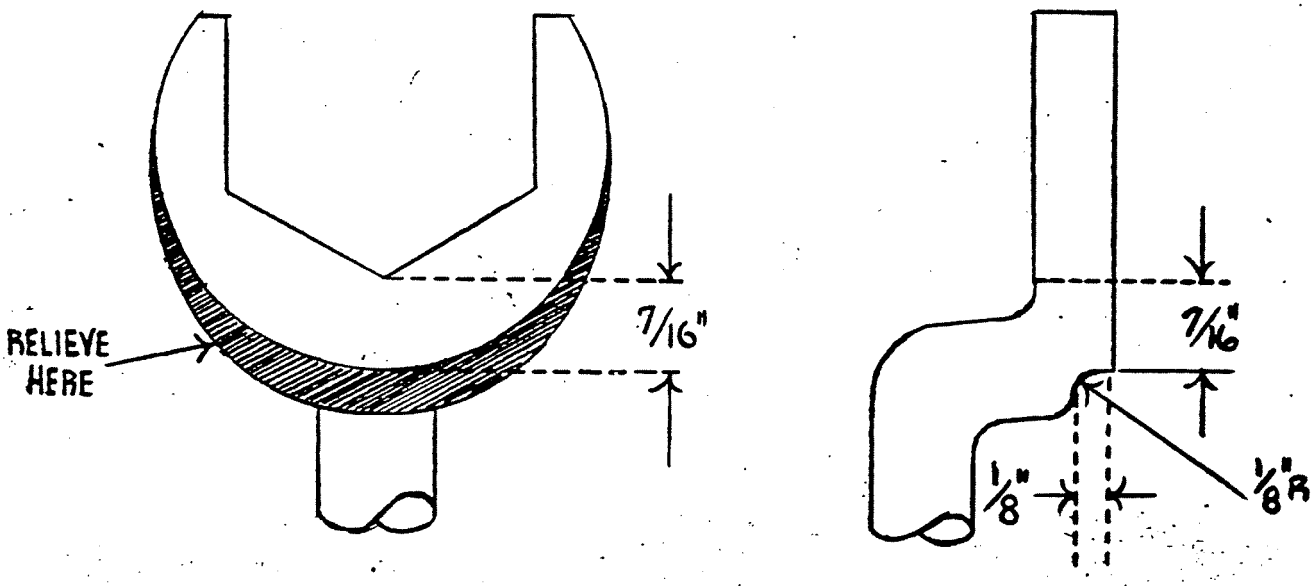
Walter Brown
Service Manager

Number 182
November 3, 1947

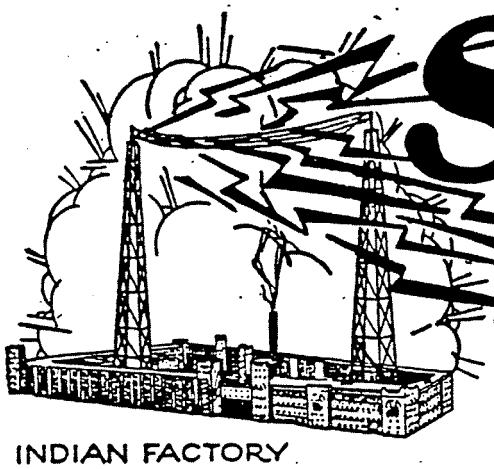
FITTING CLUTCH SPROCKET NUT WRENCH NO. 27-T-350

The compactness of the Indian 74, Standard Scout and 101 model transmissions makes it difficult to get a good hold on the clutch sprocket nut when tightening, even when using the Special Wrench No. 27-T-350 for this nut.

A more firm grip on this nut can be obtained by relieving Wrench No. 27-T-350 at the heel, as shown in the illustration below.

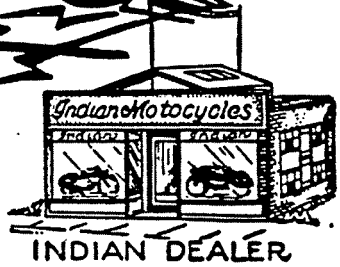


Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



Number 184
November 3, 1947

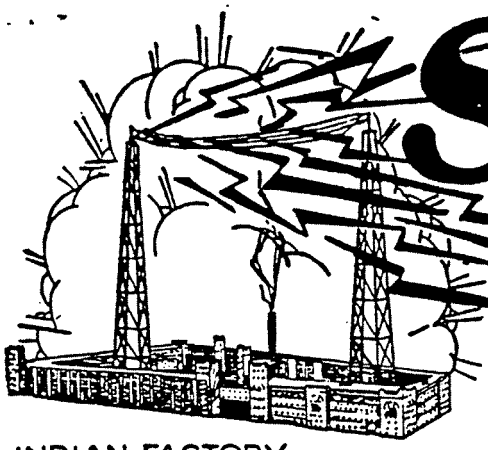
348 MODEL SPEEDOMETER MOUNTING

The 348 model speedometer (Stewart-Warner) has two studs at the base of the speedometer body. These studs are merely to "position" the speedometer head, and no nuts or washers are required. The instrument panel is designed to hold the speedometer down when the panel screws are tightened. We are advising you of this assembly so that you will not assume that nuts were supposed to be on the studs and were left off by mistake.

CAUTION: When the instrument panel is removed to attach the wiring from the handlebars, make sure the speedometer does not lie against the "hot" terminal on the ignition switch. A short circuit at this point is apt to burn the entire wiring harness. A rubber band is being assembled on the speedometer now to form an insulation in case the speedometer head strikes against the switch. However, a number of machines were shipped without this insulation.

Two or three turns of friction tape will do the same insulating job.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 185
November 10, 1947

SERVICE IMPROVEMENT ON 348 MODELS

1948 IMPROVEMENTS

REAR BRAKE DRUM:

A new method of assembling the bearing and tightening the bearing lock has gone into effect. A pattern change has been made so there will be more material around the bearing housing.

A grease fitting has been provided inside of the wheel flange of the drum so that the bearing can be greased with a grease gun. It is necessary to remove the wheel.

CRANKCASE BEARING:

The pinion housing has been revised so that the bearing may be line-ground straight through after it is assembled in the crankcase. The pinion bearing in the crankcase may be lapped to fit oversize rollers when rebuilding the engine.

EXHAUST TUBE AND MUFFLER ASSEMBLY:

The exhaust tube and muffler assembly is being made in two pieces. The connecting joint will give flexibility and prevent breakage at the muffler. It has been found that much of the discoloration of exhaust pipes is caused by overheating from racing the engine with retarded spark.

FRONT FORK:

We have done away with the needle bearings and are installing bronze bushings to obtain longer life. Grease fittings have been provided at all the cross shaft bushings, in the fork bracket, fork crown and head bearings. The 348 shackle bolts must not be used as replacement on needle bearing forks.

GASOLINE TANK:

The tank shell and back plate dies have been reworked so that the parts fit closer together and so that the overlap at the back plate is wider, to make a stronger joint. A reinforcement was added a while back at the bottom seam. A closer inspection is being made on the quality of the soldering operations and rubber washers have been added at the tank bracket and frame connections to take care of slight misalignment of the two surfaces and to absorb some of the vibration.

INSTRUMENTS:

The ammeter has been eliminated because we cannot obtain one that will stand up satisfactorily, also because we had so many requests for the flasher type of indicator. The indicator and speedometer light bulbs are Mazda No. 51.

OIL PUMP:

A new gear feed, as well as gear return oil pump, is being assembled on the new models to assure constant supply of oil at all speeds.

PISTON RINGS:

A new piston ring combination is being used to eliminate ring and cylinder wall scuffing, also to increase the life of the piston rings.

A chrome finished compression ring is used in the top groove, two inside bevel compression rings are used in the second (with the bevel assembled towards the top), and a scraper type oil ring is used in the bottom groove.

SPEEDOMETER:

A new Stewart-Warner speedometer is being used on the 348 models. This speedometer is driven off the front wheel; it eliminates the trouble we have been experiencing with the rear wheel drive type. The speedometer is held in position by the instrument panel.

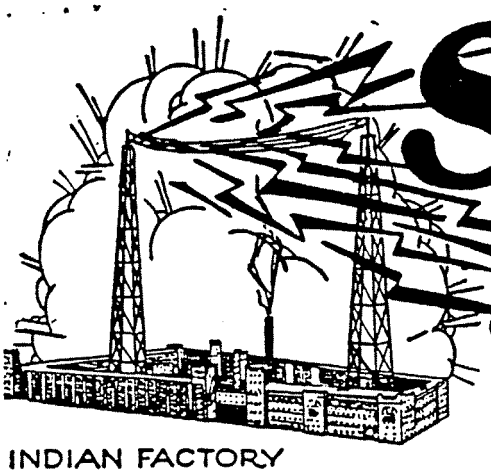
WHEEL HUB BEARINGS:

Alemite fittings have been provided so that the bearings may be greased without removing the wheel.

IMPORTANT:

It is extremely important that you report any failure which may occur at once. Please send in the part in question with Form M-709 filled in completely to give us the whole story. The information which you send will allow us to take the necessary steps to correct undesirable conditions quickly.
We want to keep improving the quality of our products, so please do your part by sending in the part and the complete story.

Walt Brown - Service Manager



Service Shots

FOR Indian Dealers

Number 186
November 10, 1947

MODEL 348 GENERATOR

The generator is a high output type with a two charge regulator. When the battery is low, the generator charges at full output and as the battery becomes fully charged the maximum output is reduced about 50%.

The generator output must be tested with an ammeter in the battery circuit. When testing the generator the regulator cover should be removed and the position of the regulator contact points, nearest the brush end of the generator, observed. When the points are closed the generator is on high output and when open the resistance in the field circuit reduces the output. This condition must be considered before adjusting the position of the third brush to change the output.

GENERATOR INDICATOR LIGHT

The red indicator light on the instrument panel should burn when the switch is turned to the I or L position and go out when the generator starts to charge. When the engine is running at slow speeds the light may burn.

Failure of the light to burn with the switch on will normally indicate:

1. A broken or burned out indicator bulb.

2. A loose or broken wire between the switch terminal (#1 with Blue spot) and the indicator terminal (T) on the regulator.

3. A broken indicator ground wire inside the regulator.

To test for defective bulb or wiring ground the wire which connects to the indicator (T) terminal on the regulator. If the bulb lights with this connection the defect is in the indicator contacts or ground wire inside the regulator. Remove the regulator cover and inspect the flexible copper wire between the indicator contact and the cover support post and be sure that the contacts are clean and meeting.

Failure of the light to go out will indicate:

1. A grounded indicator light wire.

   Remove the wire which connects to the indicator terminal (T) on the regulator. If the light still burns check the indicator light wiring for grounds.

2. A burned out field fuse.

   Remove the fuse holder and inspect for fuse. If the fuse is burned out check the battery to generator wiring for loose or corroded connections.

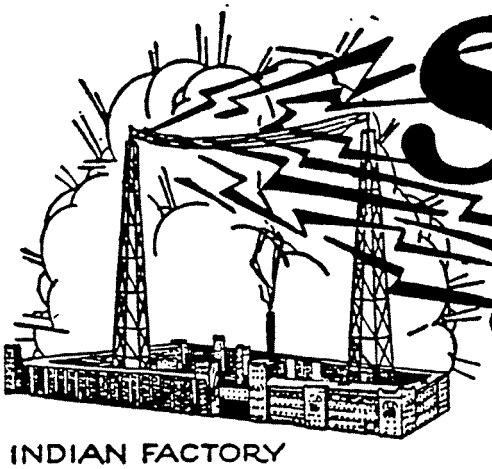
3. A loose or broken generator belt.

   Adjust or replace the generator belt.

4. A defective cutout relay or generator.

   Inspect the cutout relay contacts and connections. With the engine running at a medium speed close the cutout points manually and check the test ammeter. If charge is shown but stops when the points are allowed to open, the cutout relay is defective. If no charge is shown the defect is in the generator.

Walt Brown - Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 187
November 10, 1947

WARRANTY ADJUSTMENTS ON AUTO-LITE PRODUCTS

GENERATORS - DISTRIBUTORS - COILS

The Electric Auto-Lite Company prefers to handle all warranty requests on Auto-Lite products through their dealers. Therefore, beginning right now, please follow the procedure as outlined.

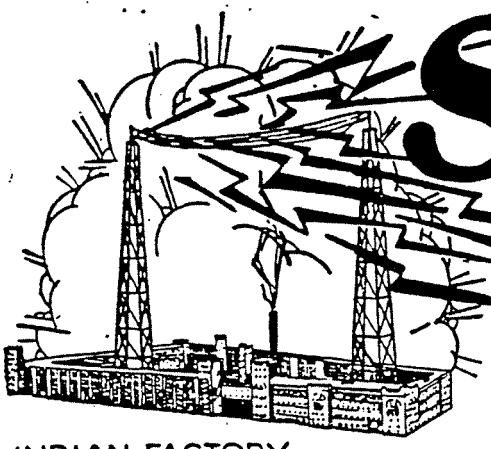
The enclosed Auto-Lite Authorized Service Station Directory lists their dealers in your territory.

When returning a damaged part for adjustment, an Auto-Lite warranty adjustment request (Form #621) must be completely filled in and attached to the part in question.

We are attaching a sample form so that you will know what information is required. Additional forms may be procured from the Auto-Lite Station which handles your warranty requests.

Please follow the above procedure if you wish to have your requests handled promptly, because Auto-Lite has asked us to advise you to handle all requests for adjustments in this manner, so please do not send them in to us, as it will be necessary to return them to you.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 188
November 24, 1947

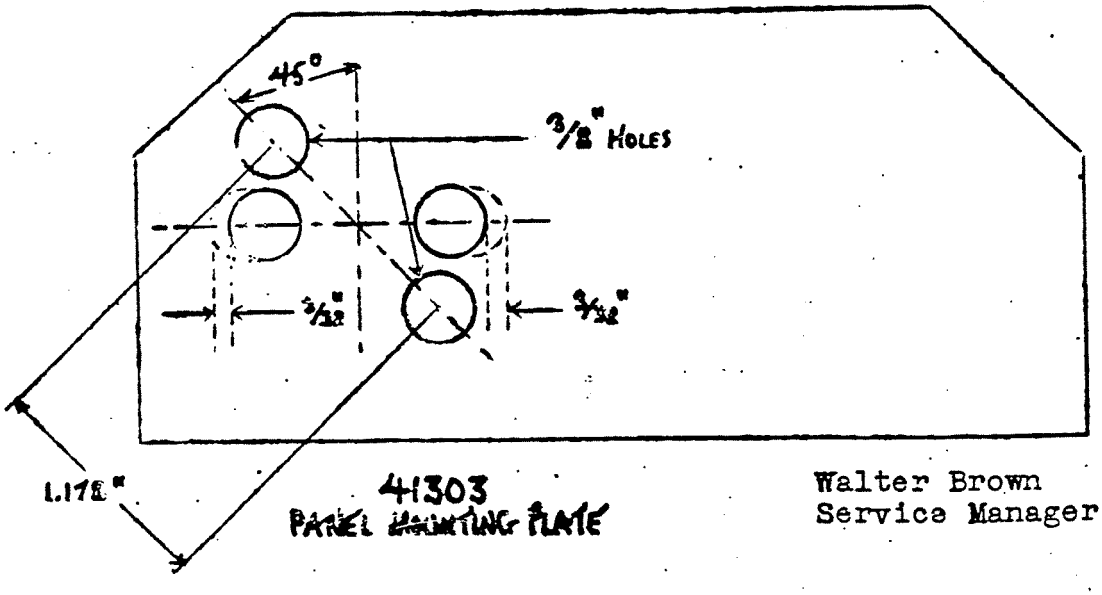
AMMETER INSTALLATION

We are unable to purchase any more #41921 ammeters (Hoyt type), as used on 1938 to early 1946 models; therefore, we are filling all part orders for this ammeter with #168002 ammeter (U. S. Gauge type), as used on the later 346 and all 347 models.

To install the #168002 ammeter (U. S. Gauge type) on motorcycles originally equipped with #41921 ammeter (Hoyt type), it is necessary to make a change in the instrument panel and the panel mounting plate.

The ammeter hole in the instrument panel must be enlarged to 2-15/64" diameter. This can be done with an expansion reamer, a round file, or with a sharp three-cornered hand scraper.

The ammeter holes in the panel mounting plate must be elongated 3/32" with a round file, or two new holes drilled in the plate, as shown in the sketch.



41303
PANEL MOUNTING PLATE

Walter Brown
Service Manager

No. 189
January 28, 1948

CHEK MODEL "B"

BATTERY CHARGING CIRCUIT

[redacted]

connected, making a circuit from the generator through the choke coil, rectifier and fuse to the battery. This circuit charges the battery during daylight riding.

HEADLIGHT AND TAILLIGHT CIRCUIT

When the switch is turned to the left, terminals 1 and 4 are connected to make a circuit from the generator to the HI-LO beam switch and headlight. The switch in the same position connects terminals 8 and 6 which makes a circuit from the battery to the taillight.

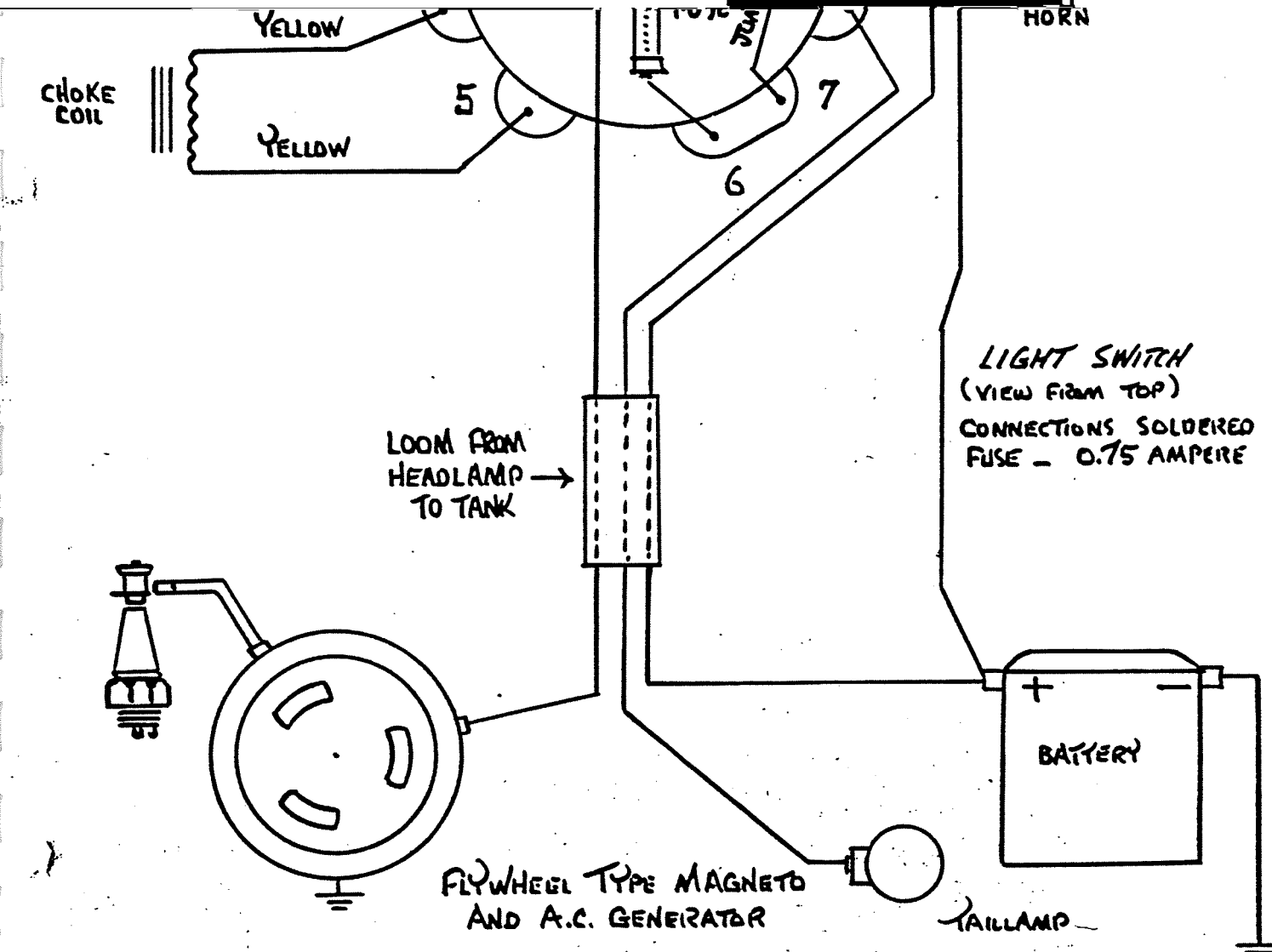
NOTE: There is no current going into the battery when the switch is in this position.

PARKING LIGHT AND TAILLIGHT CIRCUIT

When the switch is turned to the left, terminals 6 and 3 are connected to make the circuit from the battery to the parking light. The switch in the same position connects terminals 10 and 8 to complete the circuit from the battery to the taillight.

NOTE: There is no current going into the battery when the switch is in this position.

Walter Brown
Service Manager



CHEK MODEL 'B" ELECTRICAL WIRING DIAGRAM

INDIAN FACTORY

Indian Dealers

INDIAN DEALER

Number 190
February 23, 1948

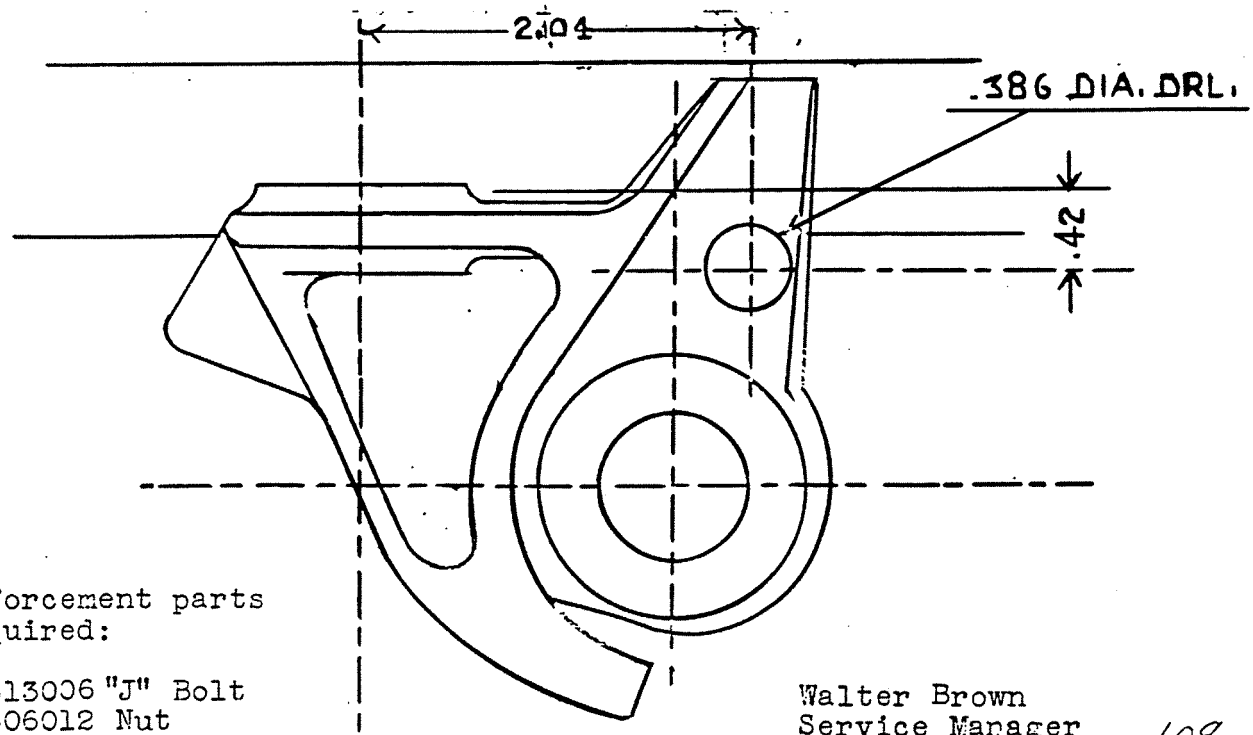
348 JIFFY STAND REINFORCEMENT

The jiffy stand bracket may be reinforced to prevent breakage by anchoring it to the frame lower tube by means of a "J" shaped 3/8" bolt, nut and plain washer.

The brackets must be drilled for the "J" bolt (.386 diameter drill) as shown on the sketch below.

Write in to the Indian Service Department for the number of "J" bolts, nuts and washers you need for installation on the early 348 models which did not have the jiffy stand bracket reinforcement.

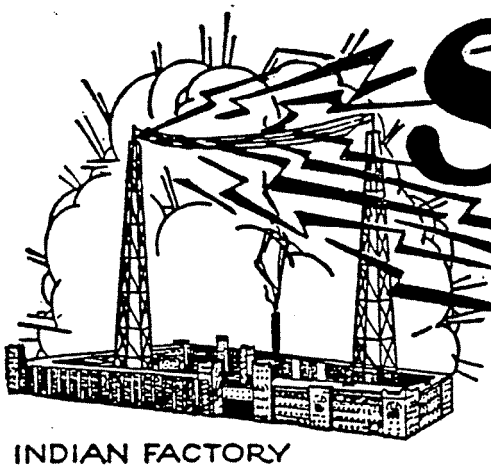
These parts will be shipped to you no charge.



Reinforcement parts required:

1 - 313006 "J" Bolt
1 - 606012 Nut
1 - 920008 Washer

Walter Brown
Service Manager



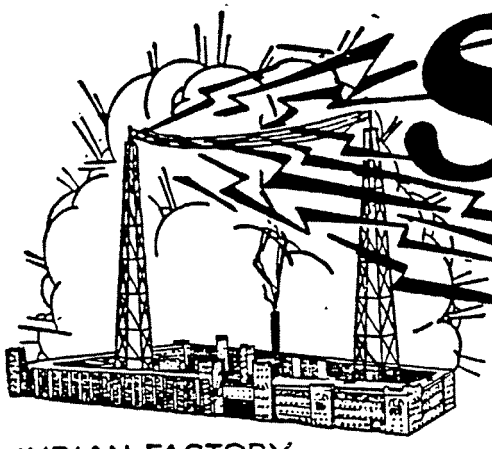
Service Shots

FOR Indian Dealers

Number 191
February 23, 1948

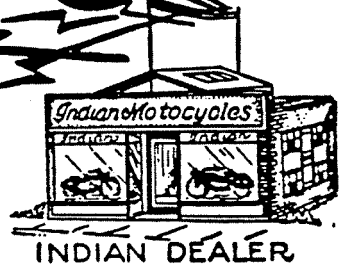
ENGINE CLEARANCES FOR 1944-1948 INDIAN 74'S

LOCATION	CLEARANCE
Cam shaft bushing clearance	.0005 to .0015
Cam shaft end play	.004 to .008
Connecting rod side play	.010 to .020
Connecting rod roller bearing clearance	.0005 to .0015
Pinion and drive shaft roller bearing clearance	.0005 to .001
Flywheel end play - Sprocket on	.005 to .010
Flywheel end play - Sprocket off	.015 to .030
Pistons:	
Top land	.025 to .028
Other lands	.021 to .024
Skirt	.004 Std. .005 Bonne.
Cam ground at wrist pin bosses to	.012
Piston ring end gap	.010 to .020
Piston ring width:	Std. Bonne.
Compression rings	3/32" 1/16"
Oil rings	5/32" 5/32"
Piston ring groove clearance	.002 to .003
Piston pin clearance in rod	.001 to .0015
Piston pin diameter	.750
Piston side play on upper rod bushing	3/32"
Spark advance	1/2" -- 36°
	5/8" -- 40°
Valves:	
Intake	.004 to .006
Exhaust	.006 to .008
Seat degree	35°
Face degree	35°
Stem diameter	.370
Guide hole diameter	.375
Valve seat width	1/16" to 1/8"
Transmission End Play	.005 to .010
Transmission Countershaft Gear End Play	.010 to .015



Service Shots

FOR Indian Dealers



Number 192
March 1, 1948

MODEL 348 SPEEDOMETER BEZEL ROLLING TOOL

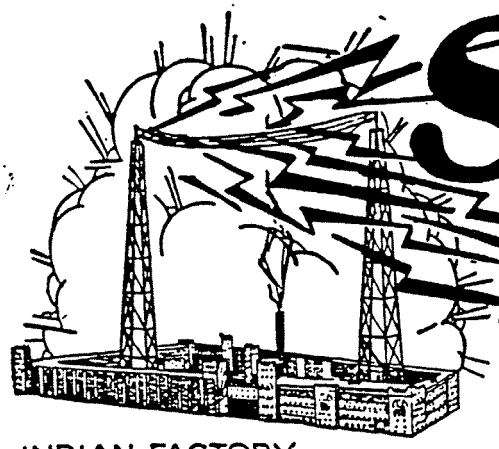
The 348 speedometer bezels are sealed to weatherize the instrument; therefore, a special bezel rolling tool is required to install the bezel on the 348 model Stewart-Warner speedometers when it becomes necessary to replace broken glasses. These tools will have to be made to order, so we must know how many are required.

Please fill in the attached part order and return as soon as possible, marked "Attention of Walt Brown, Service Department.

Bezels and gaskets will be available for replacements.

Walter Brown
Service Manager

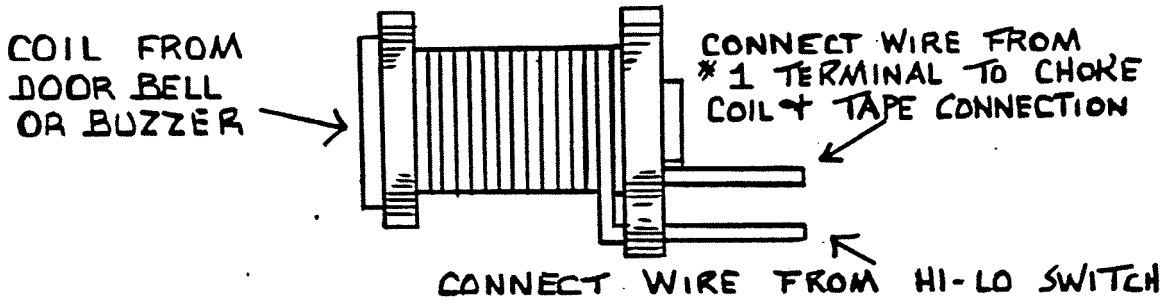
111.



Service Shots

FOR Indian Dealers

Number 193
April 5, 1948



125 c.c. CHEK MOTORCYCLES

To prevent burning out the light bulbs in the 125 c.c. Chek motorcycles, an inductive reactance (electro magnet or choke coil) may be placed in the light circuit.

The coils of a common house door-bell or buzzer, connected in series with the lights, will control the voltage at high engine speeds and protect the bulb.

MODEL "B" CHEK:

1. Remove headlight rim, lens and reflector.
2. Disconnect Hi-Low light switch wire from #1 terminal, as shown in Service Shot #189.
3. Connect a short length of wire approximately 6" long to #1 terminal.
4. Connect choke coil to wire from #1 terminal (as shown in sketch) and tape connection.
5. Connect wire from Hi-Low switch to other lead from choke coil and tape connection.
6. Wind tape around entire choke coil and fit inside headlamp.
7. Assemble rim, lens and reflector.

MODEL "A" CHEK:

The choke coil may be installed at any convenient spot between the headlight terminal on the crankcase and the switch.

TO OVERCOME BULB FAILURES

1. Remove instrument panel cover.

2. Remove left gas tank.

3. Remove instrument and light panel bracket.

4. Unsolder the wires on the bulb sockets.

5. Solder one wire 7" long and one wire 8" long on new socket, as shown in sketch. (SPEEDOMETER LIGHT)

6. Solder new wire 8" long and generator indicator light wire from harness on other new socket, as shown in sketch.

7. Cut instrument and light panel bracket, as shown in sketch, and reassemble on frame. Replace gas tank.

8. Insert both bulb sockets half way through rubber pad. Assemble pad over panel stud and adjust pad to lie flat on top of gas tank. Connect wires on switch as shown.

[redacted]

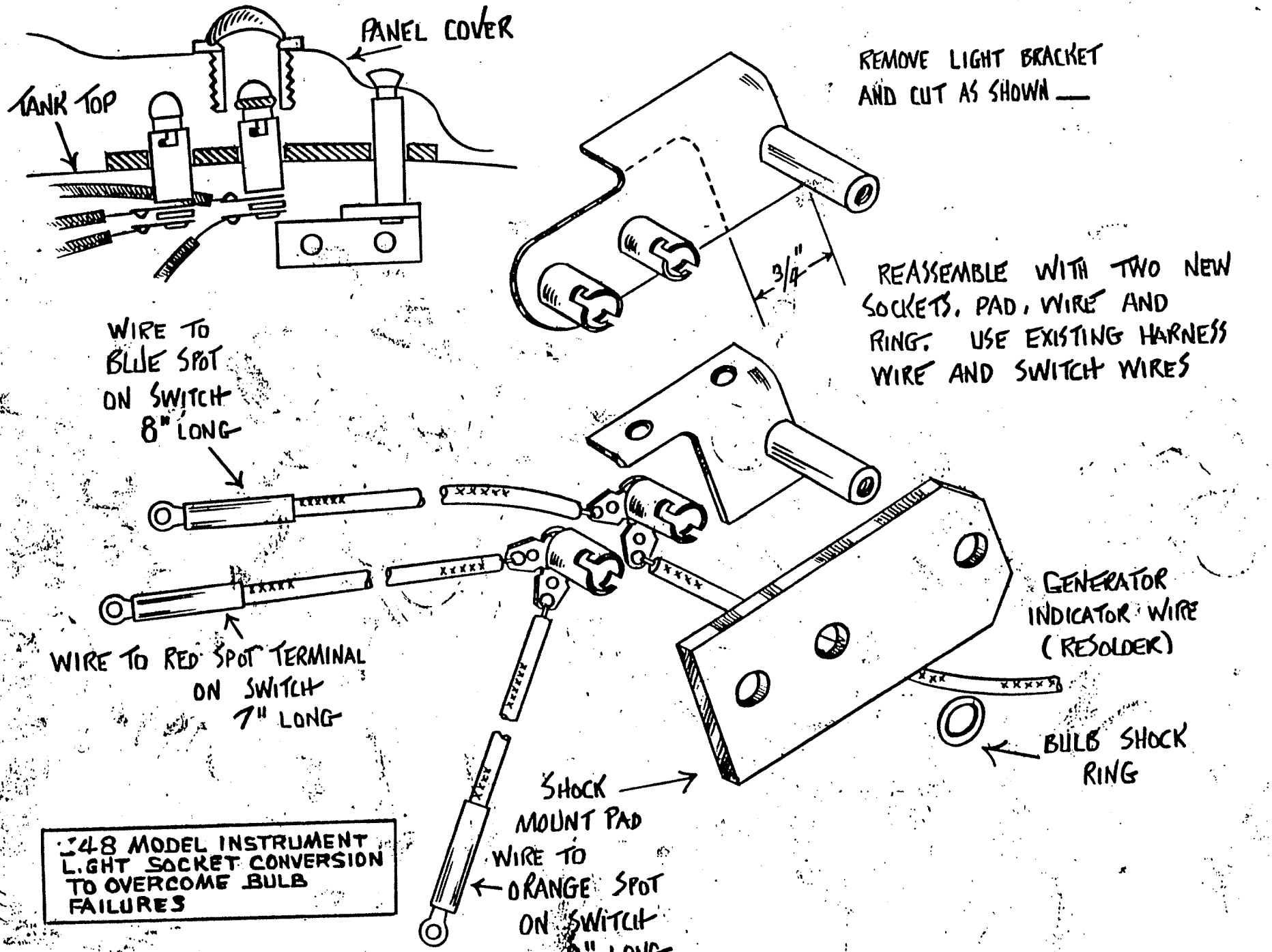
generator indicator light bulb.

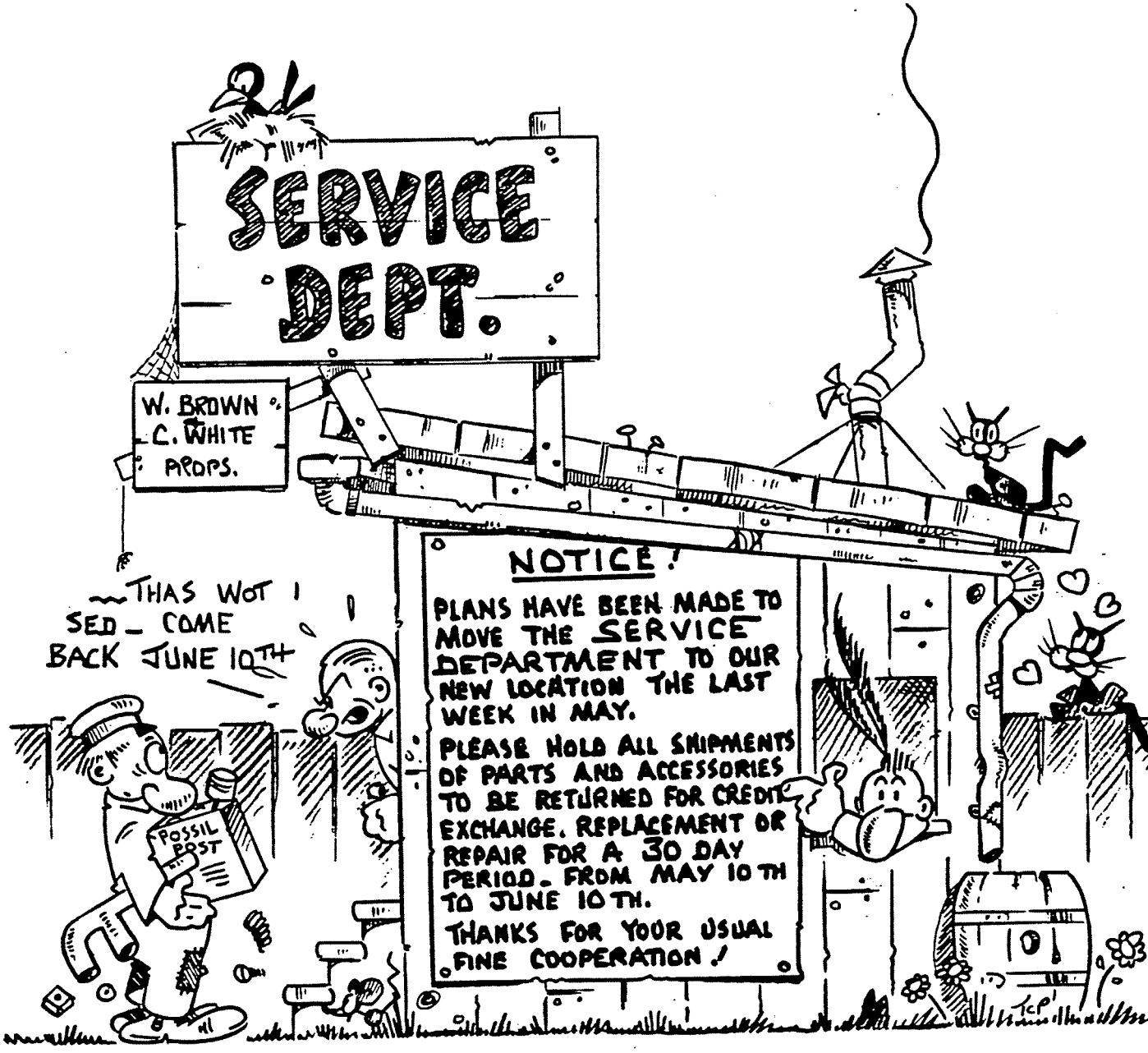
10. Replace instrument panel.

NOTE: Please use attached order blank when ordering the parts you need. One set of parts includes:

2	799005	Bulb Socket
1	763006	Bulb Shock Ring
1	628005	Pad Shock Mount
1	935025	Wire Assembly

These parts sent no charge on request. Send orders to Walt Brown, Service Department.


PANEL COVER
TANK TOP
REMOVE LIGHT BRACKET AND CUT AS SHOWN
3/4"
REASSEMBLE WITH TWO NEW SOCKETS, PAD, WIRE AND RING. USE EXISTING HARNESS WIRE AND SWITCH WIRES
WIRE TO BLUE SPOT ON SWITCH 8" LONG
WIRE TO RED SPOT TERMINAL ON SWITCH 7" LONG
GENERATOR INDICATOR WIRE (RESOLDER)
BULB SHOCK RING
SHOCK MOUNT PAD
WIRE TO ORANGE SPOT ON SWITCH 8" LONG
'48 MODEL INSTRUMENT LIGHT SOCKET CONVERSION TO OVERCOME BULB FAILURES


SERVICE DEPT.
W. BROWN
C. WHITE
PROPS.
NOTICE!
PLANS HAVE BEEN MADE TO MOVE THE SERVICE DEPARTMENT TO OUR NEW LOCATION THE LAST WEEK IN MAY.
PLEASE HOLD ALL SHIPMENTS OF PARTS AND ACCESSORIES TO BE RETURNED FOR CREDIT EXCHANGE. REPLACEMENT OR REPAIR FOR A 30 DAY PERIOD - FROM MAY 10 TH TO JUNE 10 TH.
THANKS FOR YOUR USUAL FINE COOPERATION!
~THAS WOT I SED - COME BACK JUNE 10TH
POSSIL POST

Service Shots

FOR Indian Dealers

INDIAN DEALER

Number 196
June 14, 1948

MODEL 348 OIL PUMP

A triple gear feed pump and a double gear large capacity scavenging pump are built into a single unit.

The feed pump center (driving) gear (4) does not pump oil. The bottom (driven) gear (3) forces more oil than the engine requires to the pressure side of the pump. The upper (metering) gear (5), 0.017" thinner than the other gears, pumps oil in the opposite direction at a slower rate. The metering action between the top and bottom gears governs the amount of oil delivered to the engine.

When installed, the pump must have oil in the gears for lubrication and priming. If not, force oil into feed pump elbow in pump housing. Bleed the oil feed line at the elbow connection until clear oil, free of bubbles, flows from the line.

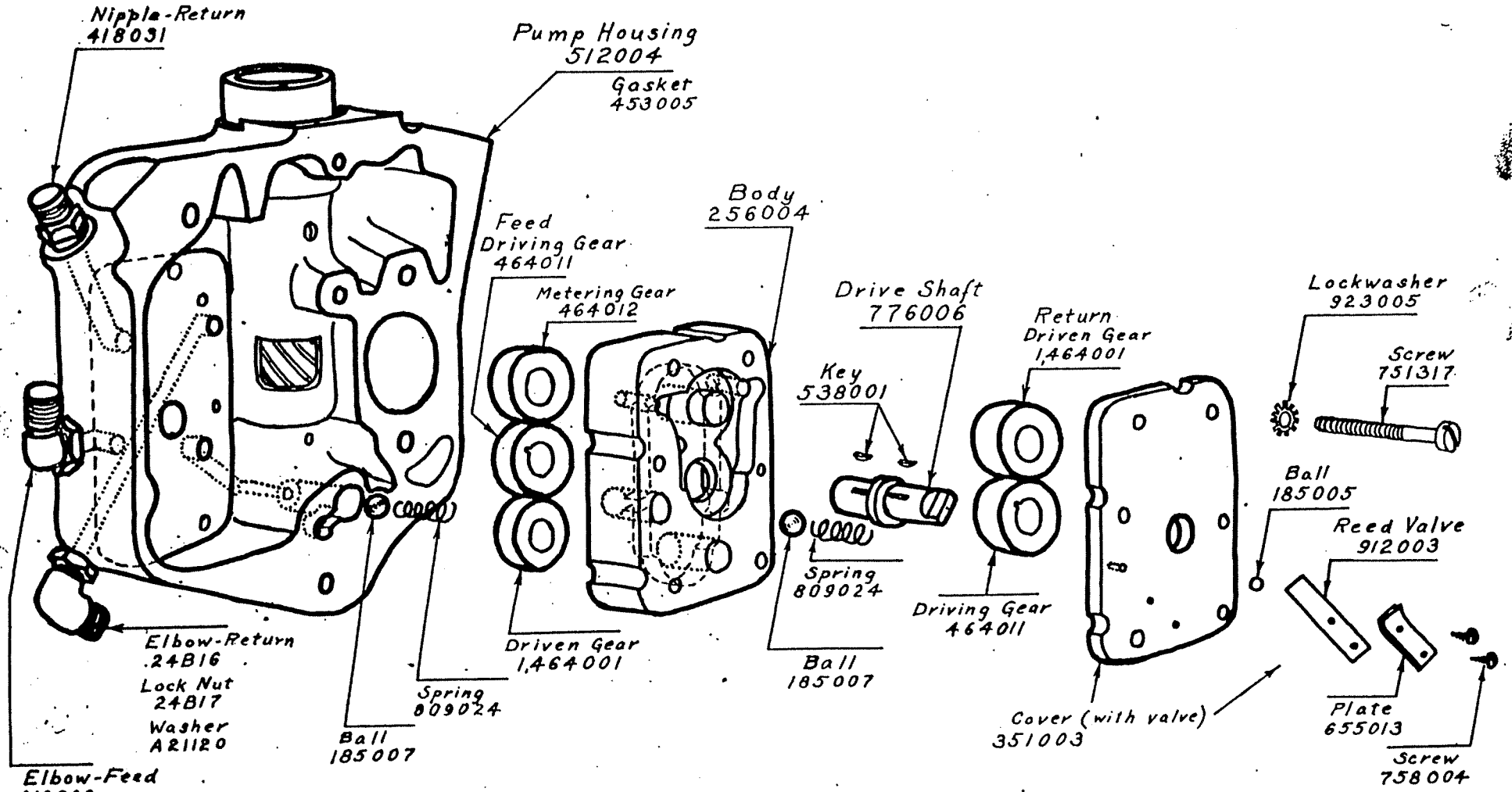
The reverse safety valve (6), a 1/8" ball and flat spring on pump body cover, must have a positive seal to prevent air leaks. The feed pump will suck air instead of drawing No. 7 ball check valve open to allow oil to flow to the gears if there is an air leak at safety valve (6)..

Two 5/16" ball check valves are used to prevent seepage to crankcase. In some cases, it is advisable to remove the upper valve (7) from the pump body to assure a positive flow of oil to the feed gears, particularly in cold weather when the oil congeals. Do not remove valve (8) between pump housing and cam case cover.

The scavenging gears (1 & 2) can be primed with a small amount of oil dropped into the return line, or at the nipple. Before starting the engine, 1/2 pint of oil must be put in the crankcase. The sump oil line (9) must be tight and sump elbow with screen (10) must be clean. A dirty or clogged screen will prevent the oil from returning to the tank as it should, and the result will be "wet-sumping," overheating of the engine and high oil consumption. Be sure to clean this screen every time the oil is changed (500 to 1000 miles).

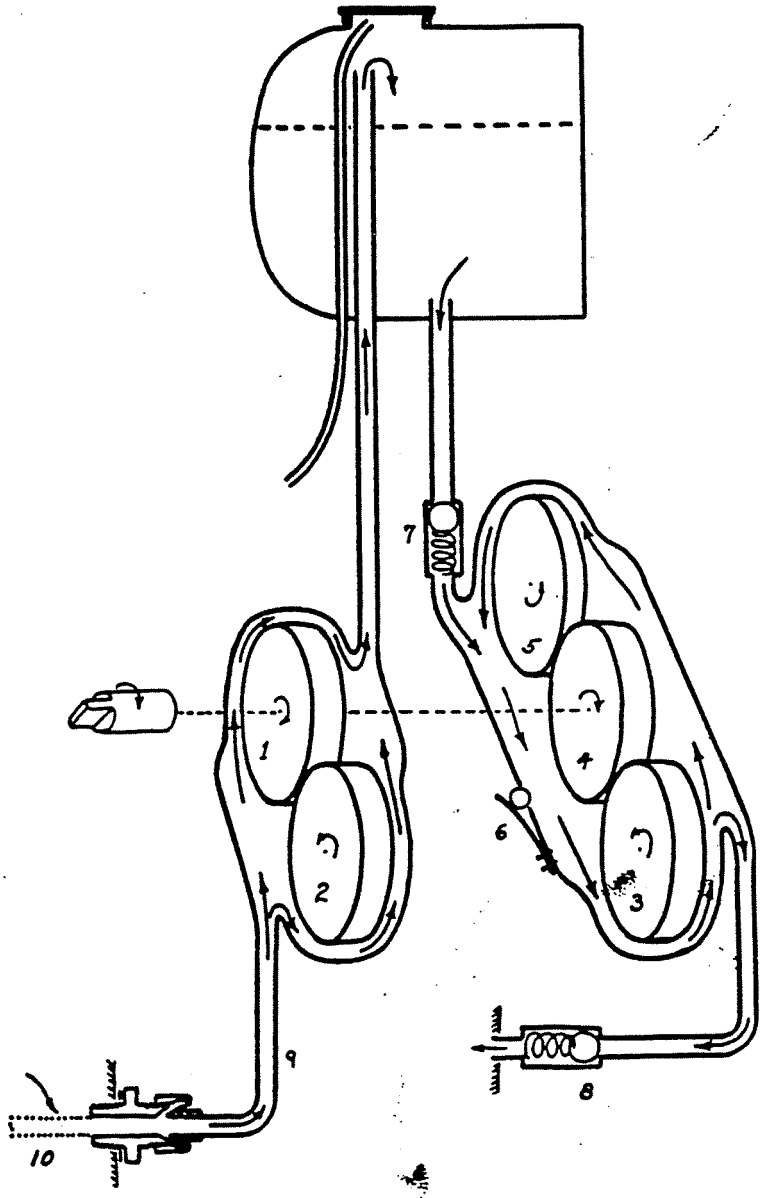
Walter Brown
Service Manager

117.

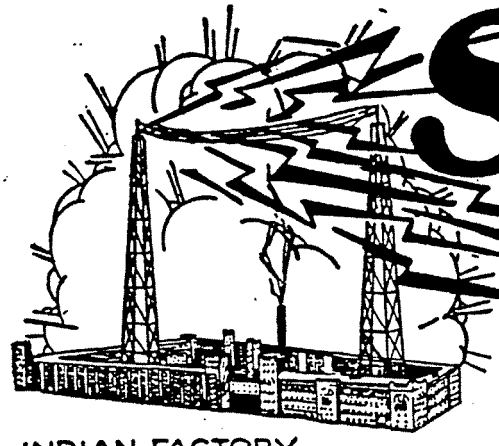


348 OIL PUMP ASSEMBLY

Battery - 669016
Magneto - 669017



MODEL 348 OILING SYSTEM



Service Shots

FOR Indian Dealers

Number 197
June 14, 1948

SEND ALL FRAMES AND FORKS FOR REPAIRS - STRAIGHTENING AND ALIGNMENT TO:

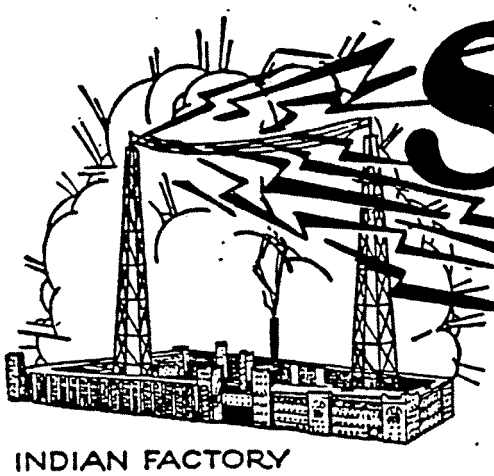
INDIAN SPORTS CENTER
354 COLUMBUS AVENUE
SPRINGFIELD, MASSACHUSETTS

We have made arrangements with the Indian Sports Center to handle all service work for our dealers on frames, forks and gas tanks.

All the frame and fork straightening and aligning fixtures that we had in the old plant have been moved and set up at the Indian Sports Center's shop. They also have hired the personnel who were doing this work for many years in our Frame Department, so they have the equipment and personnel to do first class work.

Please send all frames, forks and tanks direct to the Indian Sports Center, 354 Columbus Avenue, Springfield. They will be repaired and reshipped to you direct on a C.O.D. basis.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 198
June 28, 1948

PISTON RING CHANGE TO IMPROVE OIL CONTROL ON 348 MODELS

PART NO.	DESCRIPTION	LIST PRICE
709025	Compression Ring - Std.	.30
709026	" " .005"	.30
709027	" " .010"	.30
709028	" " .020"	.30
709029	" " .030"	.30
709030	" " .040"	.30
709031	" " .050"	.30
709032	" " .060"	.30
709041	Oil Control Ring - Std.	.80
709042	" " " .005"	.80
709043	" " " .010"	.80
709044	" " " .020"	.80
709045	" " " .030"	.80
709046	" " " .040"	.80
709047	" " " .050"	.80
709048	" " " .060"	.80

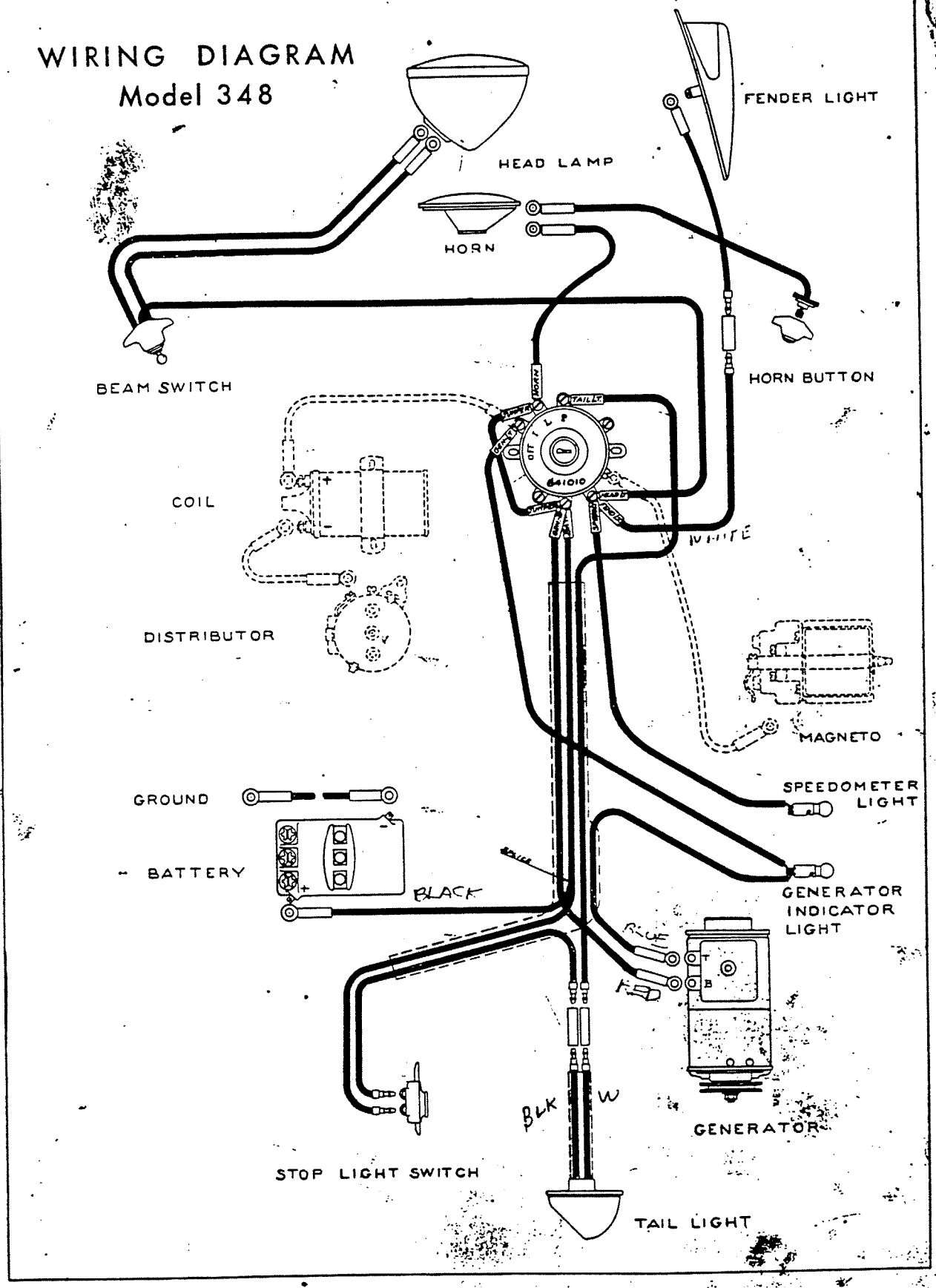
The chrome compression ring used in the top ring groove of the 348 models has been discontinued and may be replaced with a compression ring, as used in the second and third ring grooves (listed above).

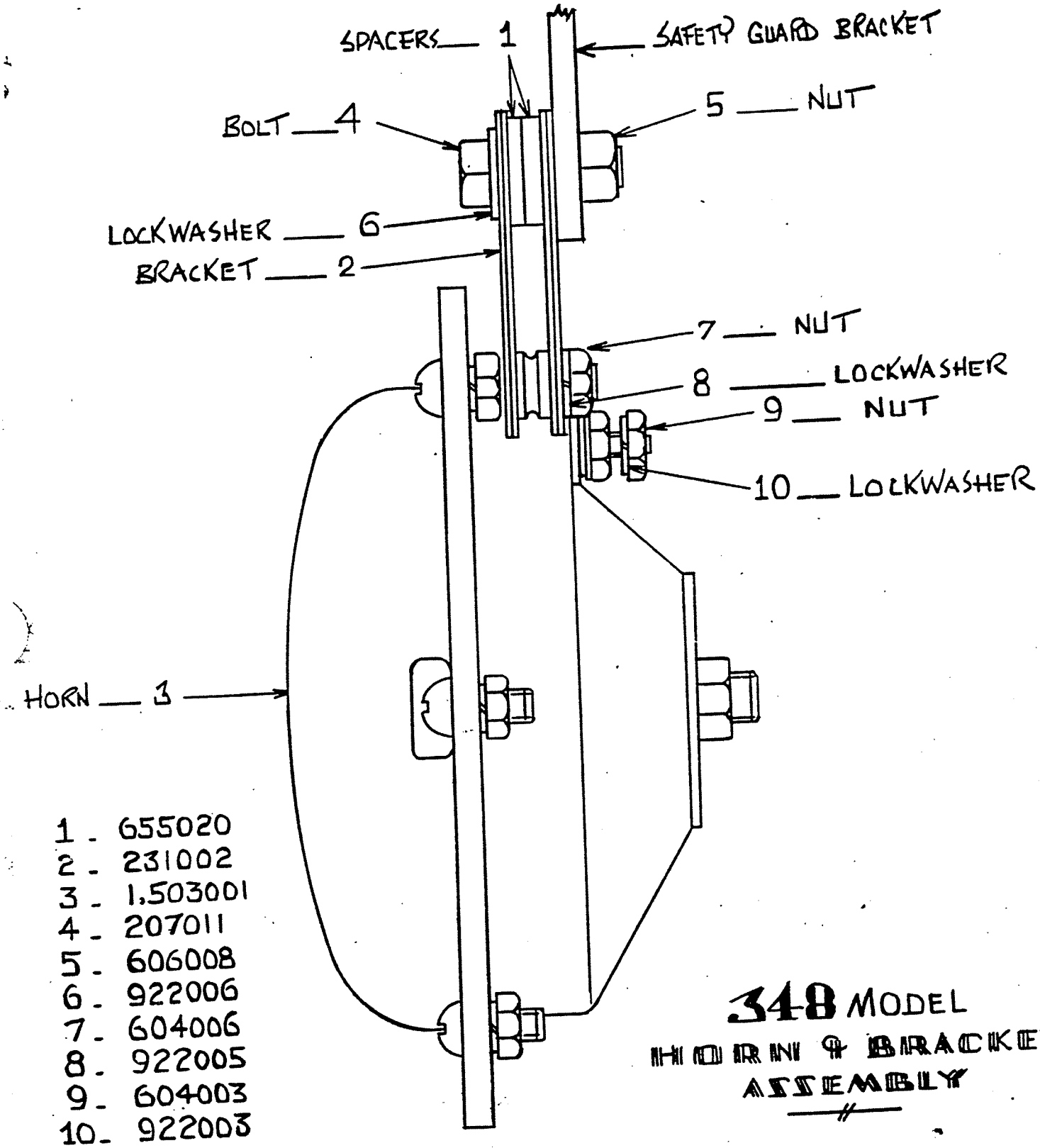
The newly introduced oil control ring is the expander type known as the "Uniflex" oil control ring. The characteristics of this new ring are such that its contour follows the cylinder wall, prevents blowby and keeps the oil from passing into the combustion chamber.

These rings may be ordered from our Parts Department on the regular part order blank.

Walter Brown
Service Manager

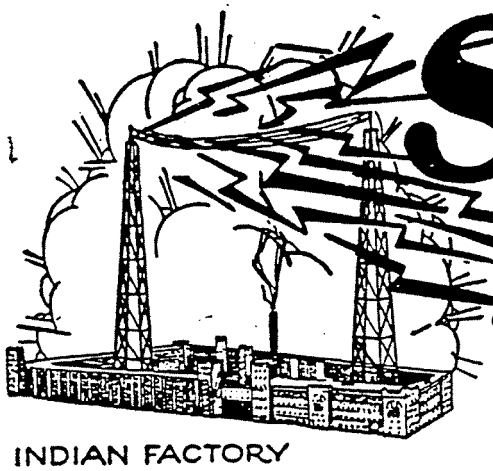
WIRING DIAGRAM
Model 348





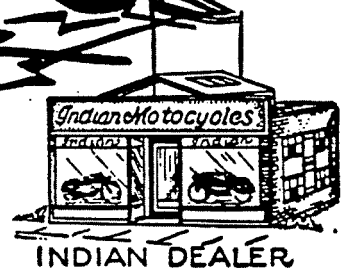
1. 655020
2. 231002
3. 1,503001
4. 207011
5. 606008
6. 922006
7. 604006
8. 922005
9. 604003
10. 922003

348 MODEL HORN & BRACKET ASSEMBLY



Service Shots

FOR Indian Dealers



Number 199
July 12, 1948

348 MODEL

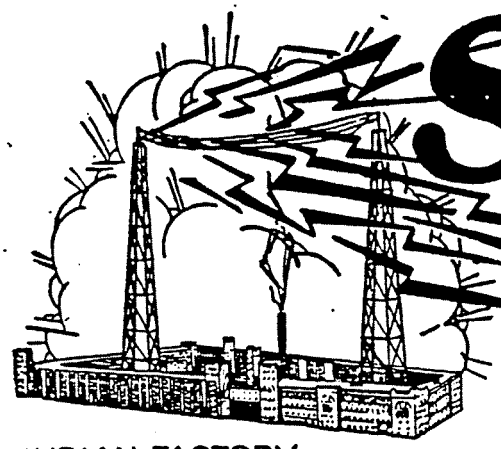
SPEEDOMETER DRIVE

Where trouble is being experienced in the speedometer drive, look for binding in the speedometer cable. The cable must be arranged so that no sharp bends or kinks are present.

The cable support clip at the lower front tank bolt must be arranged so that the cable will lie in a smooth sweeping curve. Twist the clip outward at the front end to prevent binding against the front frame tube.

If this is too difficult to arrange, remove the clip entirely and tape a short piece of split tubing onto the cable sleeve at the point where it will rub on the front frame tube.

Walter Brown
Service Manager



INDIAN FACTORY

Service Shots

FOR Indian Dealers

INDIAN DEALER

No. 200
July 19, 1948

Do not send any forks, frames or gas and oil tanks to the factory for repairs.

The Indian Sport Center, 354 Columbus Avenue, Springfield, Massachusetts, is all set up to handle the repairing, straightening and aligning of frames and forks, as well as the reconditioning of gas and oil tanks, so please send forks, frames and tanks to be repaired, direct to them prepaid. They will repair and reship them to you within 48 hours on a C.O.D. basis.

Do not send any engines to the factory to be repaired or reconditioned.

It is your responsibility, as an Indian dealer, to repair or recondition all Indian units. When an engine part fails during the guarantee period, it will be necessary to disassemble the part from the engine, and all other parts affected by the failure, and send them to us for inspection with Forms M-709 filled in.

Do not send in the complete assemblies, such as engines, transmissions, generators, oil pumps and carburetors.

Walter Brown
Service Manager

Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

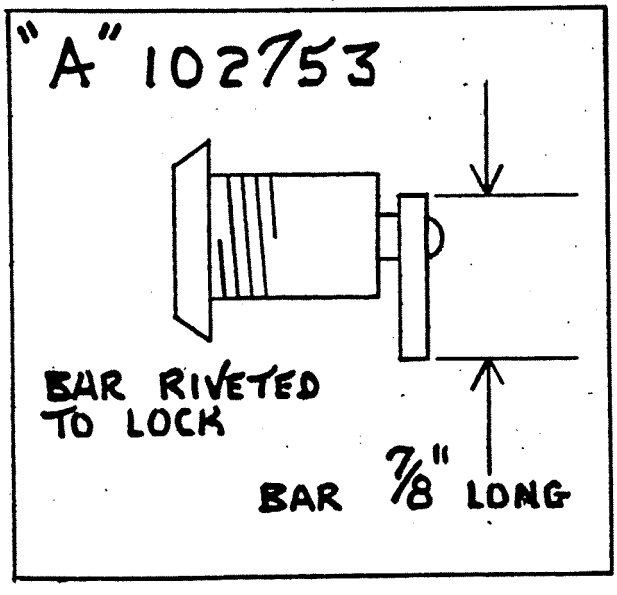
Number 201
August 9, 1948

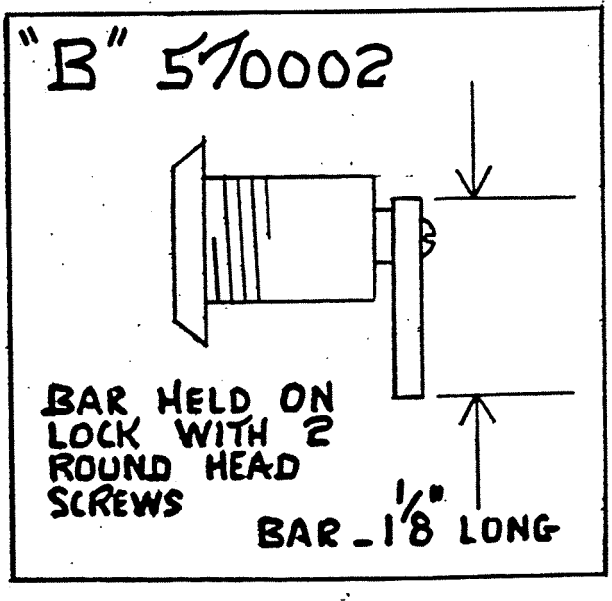
TOOL BOX AND LOCK IDENTIFICATION

During the production of 347 and 348 models, tool boxes with two different types of locks were assembled on the machines.

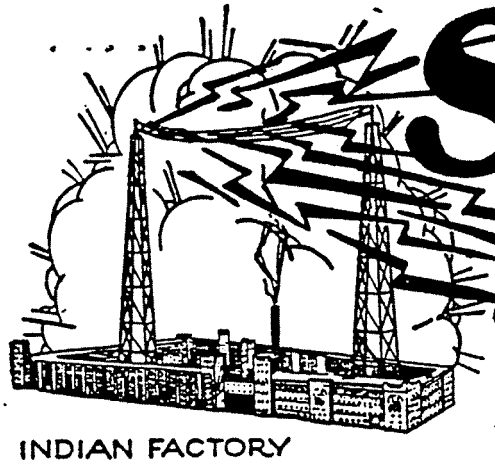
The difference is in the length of the bar. On lock number 102753, the bar is 7/8" long, as shown in sketch "A", and on lock number 570002, (sketch "B") the bar is 1-1/8" long. The methods of attaching the bars to the lock are also different, one being riveted to the locks and the other fastened to the lock with two round head screws.

When entering orders for locks, please note which type of lock is required and order according to the part number shown.





Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 202
August 9, 1948

MOUNTING INDIAN COMMANDER HORNS

Indian "Commander" Horns are the most popular motorcycle horns on the market. However, for best results, they must be properly mounted to the motorcycle front safety guards. The following procedure should be used.

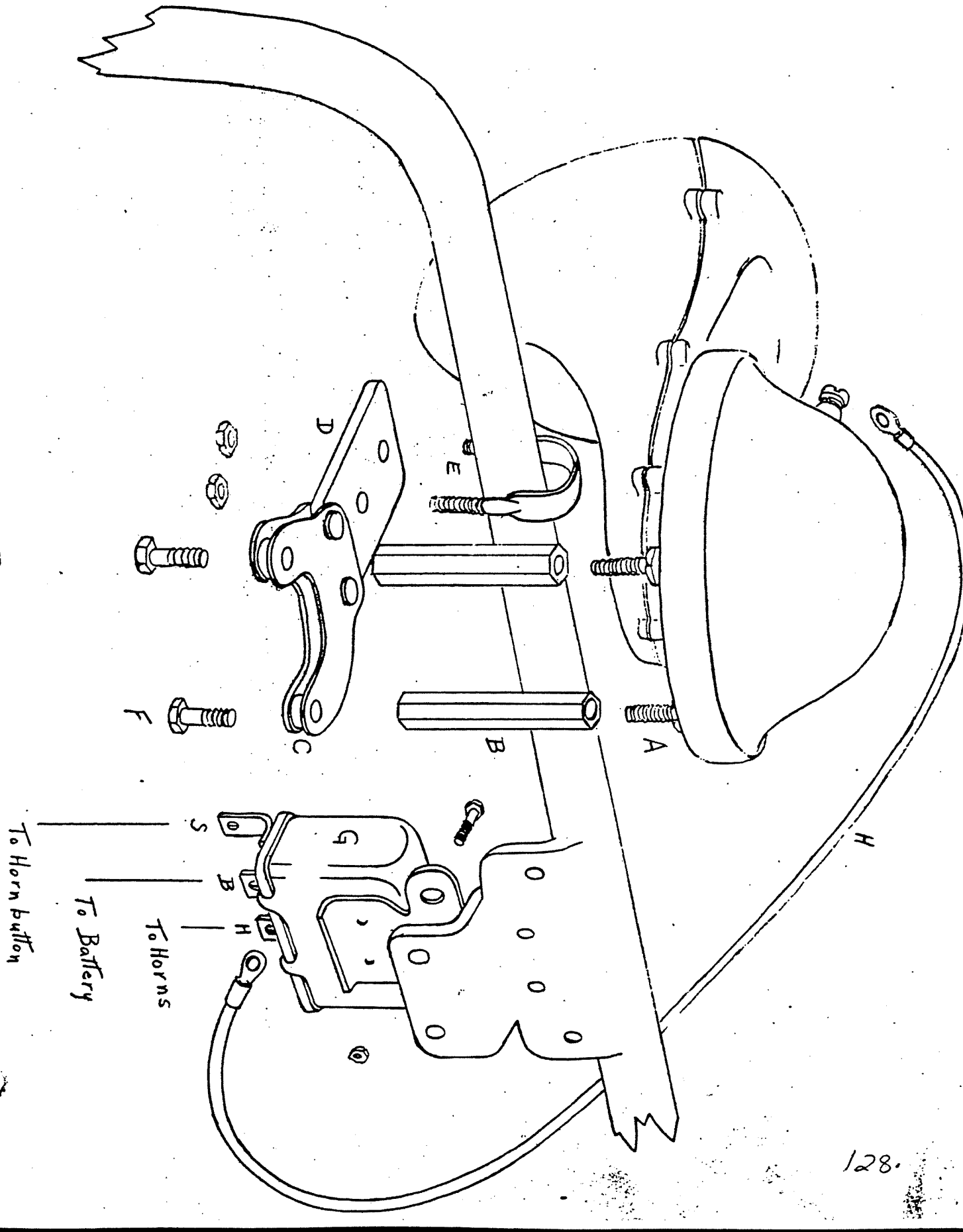
1. Screw the hex studs "B" onto the rear horn mounting bolts "A".
2. Insert washers "C" into end of spring plate "D".
3. Place "D" under top of front safety guard, spring plate toward rear. Set clamp "E" over top of guard through holes in plate. Install and tighten the clamp nuts.
4. Mount horn with studs "B" and washers "C" smooth side down over spring plate holes "C" and assemble bolts "F" through bottom of plate "D" into studs "B".
5. Adjust horn in upright position, close to tank and tighten securely.
6. Remove standard horn (supplied on machine) and mount relay "G" in its place at center of safety guard.

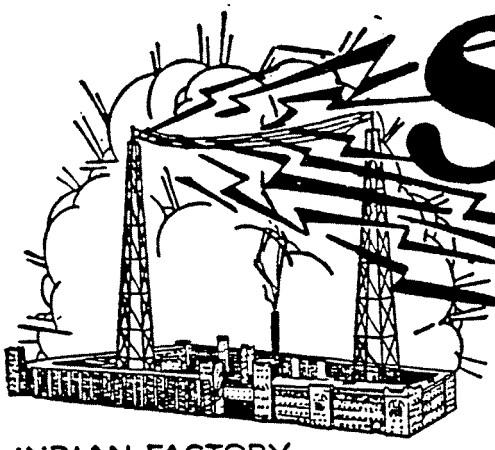
   Note: When flat washers are supplied, mount on top of spring plate holes "C" under hex studs "B" with smooth edge down on plate.

7. Attach battery wire to center terminal (marked "B")
8. Attach wire "H" to relay terminal (marked "H") and to terminal on horn cap.

Horn is now ready for use. Opposite horn mounts on other side of safety guard.

Note: Horns to be mounted on safety guard only.


D
E
F
C
B
A
H
G
S
B
H
To Horn button
To Battery
To Horns



Service Shots

FOR Indian Dealers

INDIAN FACTORY

INDIAN DEALER

Number 203
August 16, 1948

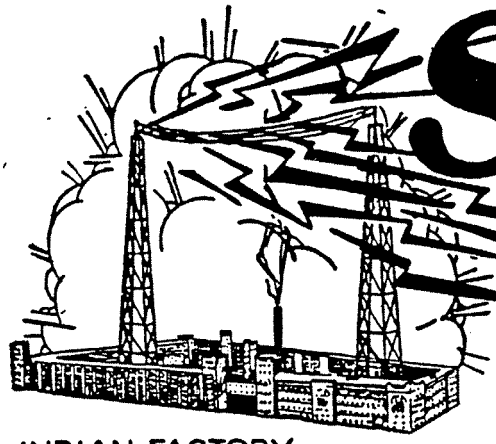
PARTS RETURNED FOR FACTORY ADJUSTMENT

1. When returning parts to the Service Department for credit or replacement, be certain to fill out and mail in Form #M-709 (Parts Returned for Factory Adjustment) and Form #M-710 (Parts Shipped to Factory)

2. When filling out Form #M-709, write the owner's name and address on the reverse side of the form. This is necessary so that we may inform the rider as well as the dealer as to action taken.

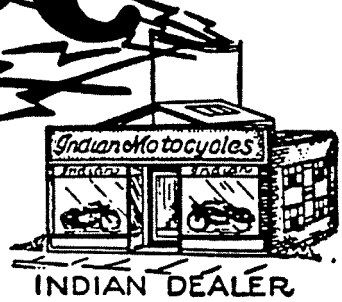
3. Requests for replacement parts will not be considered unless Form #M-709 is completely and properly filled out and sent in. (Attach string section of tag to returned part, fill out and mail in information section of tag.) Space limitations here at the factory make it impossible for us to hold return shipments so, for your own benefit, send us all requested information that we may act immediately. Parts received without the proper form will be discarded and no action taken.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers



Number 204
September 13, 1948

IMPORTANT

CHECK ALL GAS AND OIL TANKS ON THE 149 MODELS

A number of the gas and oil tanks did not have the welding flux and acid washed out of them; rust and corrosion formed on the inside.

Check all 149 model tanks for rust or corrosion and wash out with kerosene. Pour a handful of ball bearings or lead shot in with the kerosene and shake thoroughly to loosen up the particles of rust and corrosion.

It is important that you check all tanks for the condition and wash out thoroughly, because rust in the oil tank is liable to clog the oil passages and damage the engine. Rust in the gas tank will clog up the jets in the carburetor and the engine will fail to run properly and eventually stop running entirely.

In cases where the rust cannot be removed satisfactorily, let us know and we will send you a new tank.

Cleaning and inside coating methods in progress now have corrected this condition.

Walter Brown
Service Manager

[redacted]

rocker arm shaft. Therefore, no oil hole is necessary through the center of the bolt.

The oil flow is restricted by this method to prevent over-oiling of the overhead valve mechanism.

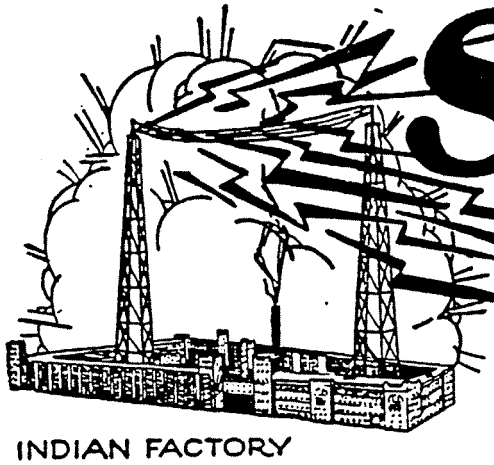
In case there are indications of insufficient lubrication of the valve rocker bearings, the oil line bolts may be removed, the threads thoroughly cleaned and their diameter reduced an additional .010".

Drilling an oil passage in the oil line bolts is not recommended because there is danger of flooding the valve mechanism.

Walter Brown
Service Manager

tap the end of the check valve a light blow with a punch and small size hammer. This will "set" the check valve on the seat to insure a positive seal so that the oil will not leak by. Then replace the spring and plug. Stretch the spring slightly before assembling it in place.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 207
September 20, 1948

INDIAN COMMANDER HORN BRACKETS

It will be necessary to assemble 1/4" flat washers between the hex studs and the spring plate to prevent breakage of the bracket. Assemble the smooth side of the washer down against the spring plate. Remove burrs from the end of the hex studs with a file.

Flat 1/4" washers are being supplied with all Indian Commander horns at the present time.

Any brackets that fail may be returned to our Service Department for adjustment, with Form M-709 filled in.

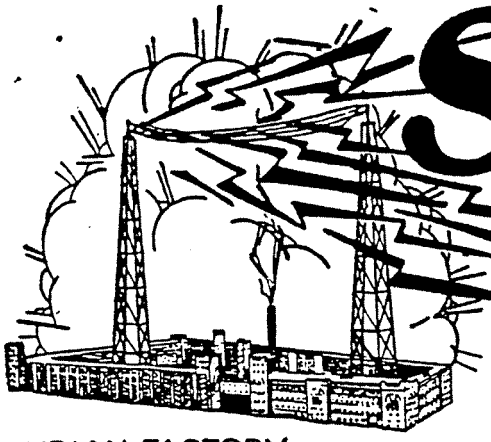
Order replacement brackets (Part No. 231005) on Accessory order blanks.

Walter Brown
Service Manager

need any attention.

Failure to pack the wheel hubs with grease will result in bearing failures. Call in the machines you have sold right away.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 209
September 27, 1948

MODEL S-2 AND S-3 CARBURETORS FOR THE INDIAN ARROW AND SCOUT

INTRODUCTION

The Model S-2 and S-3 carburetors are of the throttle piston and needle jet type of construction. A throttle piston regulates the amount of air which is admitted into the engine. The throttle piston assembly contains a metering pin which is non-adjustable for part-open throttle control; however, the metering pin is positioned in the nozzle at idle to obtain the proper mixture requirements of the engine. A float tickler pin is provided for obtaining a starting mixture. All other parts of this carburetor are fixed and require no attention except when the carburetor is completely disassembled for inspection or service.

Whenever a complete engine check-up shows that the carburetor is at fault, a complete disassembly of the carburetor should be made. The same is true when dirt or water is found to be anywhere in the fuel system.

Compressed air should not be applied to any part of the carburetor assembly or to the float bowl, even after the float assembly has been removed. If compressed air is applied to the float bowl, the nozzle holder assembly should also be removed. Direct air pressure should then be applied to the bowl only, and not to the nozzle holder assembly or to the section of the body from which it was removed. Under no circumstances should compressed air be applied to the float either in or out of the carburetor.

SUGGESTIONS FOR SERVICING

THE FLOAT SYSTEM:

1. Use care in handling the float. The metal is thin and easily damaged by dropping or bumping against the other carburetor parts.
2. Do not remove the float valve from the float unless it is to be replaced with a new part. To remove the valve, hold the float with the needle point toward you and press the short end of the valve through the spring clip. A screw driver can be used to spread the clip if caution is taken to prevent over-spreading.

spring clip, yet not loose enough to be removed with the fingers.

4. Do not damage or scratch the float valve point. This can be done when removing or replacing the float valve if the point of the valve passes through the spring clip.

5. Do not use a gasket under the float valve seat or under the float bowl cover assembly. The float position is fixed, and if a gasket is used, the fuel level will change accordingly.

THE NOZZLE HOLDER ASSEMBLY:

1. The nozzle should be removed only with a box wrench or socket. Care should be taken to protect the nozzle tip from being damaged.

2. If the pump piston assembly is not readily removed from the nozzle, it can be removed by inserting the shank of a small drill or rod (under 5/64) and pushing out the pump piston. If this method is employed, care must be taken not to damage the nozzle orifice by a rough or sharp tool.

3. Do not use a wire or drill in the metering jet which is located in the stem end of the pump piston assembly.

4. The pump piston leather should press lightly against the sides of the nozzle. If the leather is too small, dried out, deformed or grooved, it should not be used. The satisfactory operation of the carburetor depends largely upon the condition of this part. It should always be replaced if possible, if the carburetor runs rich.

5. The pump piston spring should be located inside the pump piston leather, and should press the leather against the pump piston when the parts are reassembled. It is advisable to hold the nozzle inverted until the pump piston spring has centered on the end of the idle adjusting screw and the spring has been compressed. This prevents the pump piston spring from slipping out of the leather and keeps the spring from riding the outside edge of the leather.

6. Do not use any type of "carburetor cleaner" on the packing nut, pump piston leather or the nozzle holder gasket.

7. Always use a nozzle holder gasket if available. If a new felt packing is used and the packing is too bulky to allow the packing nut to engage, trim about 1/16" from the end of the packing, or force in the packing first with a suitable tool.

8. Do not attempt to remove the idle adjusting screw without first removing the taper pin and packing nut. The idle adjusting screw must be taken out through the nozzle holder by being turned clockwise up into the nozzle holder. Be sure to replace taper pin correctly. Start it from both sides, and when the end extends through farthest, drive in, supporting the stem under a block at the end.

9. Do not interchange nozzles and nozzle holders. These parts are sold only as a matched assembly. These two parts are machined true as an assembly.

THE THROTTLE PISTON ASSEMBLY:

1. The metering pin can be removed by pressing against the pin until the snap spring is released sufficiently to be removed. Do not scratch or mar the finish of the metering pin.

2. To reassemble, the snap ring should be positioned squarely at near the open end of the throttle piston before attempting to

pletely several times. This action centers the metering pin in the nozzle and the idle adjusting screw can now be set for engine idle.

5. The average number of complete turns up (clockwise looking from bottom) from the bottom position will run 2 to 3 turns. It is suggested that the screw be set up about 2-3/4 turns for the Arrow and 3-3/4 turns for the Scout for idle mixture, then backed off (down) until the engine almost dies from leanness, then set up or richen to the best idling point.

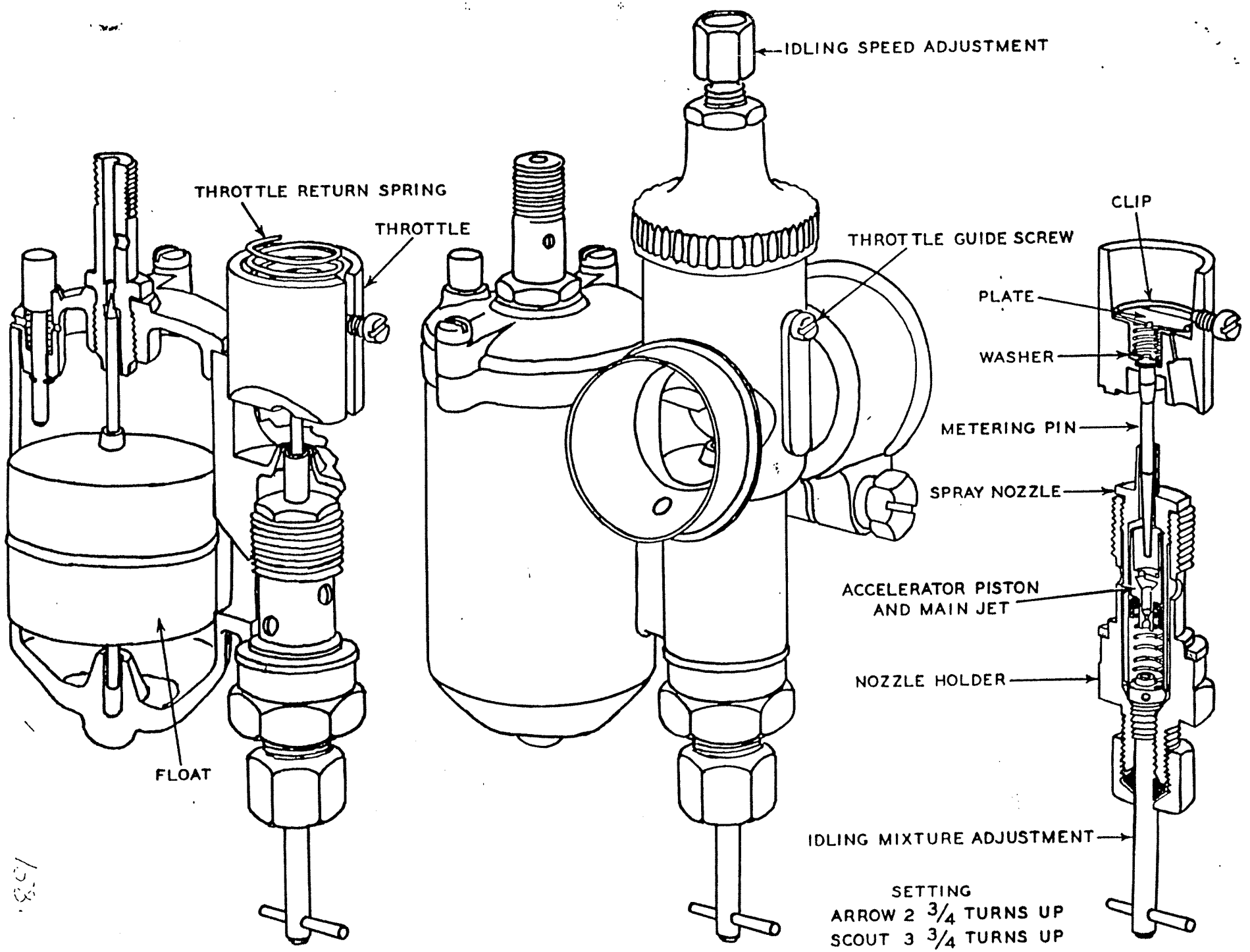
6. The throttle piston contains a stop which automatically sets the idle speed. This stop is located on the bottom of the piston and must not be tampered with.

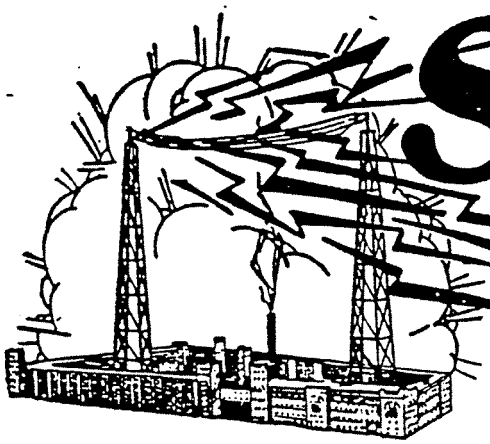
7. The wide open throttle mixture is controlled mainly by fixed orifice or jet in the pump piston assembly. The piston assemblies have ring grooves to designate the part. The S-2 pump piston assembly (Arrow) has three turned ring grooves on the outer surface. The S-3 pump piston assembly (Scout) has four turned ring grooves on the outer surface. Do not interchange!

8. Be sure the control tubing and wire fitting into the throttle piston cap and into the piston are properly arranged to give free action of the piston, particularly at the bottom of the stroke or at idle. Any undue friction of parts will prevent "return to idle."

9. Be sure carburetor is clamped on manifold properly with inside of carburetor engine mounting end firmly against cork gasket before clamp screw is tightened. Do not pull up clamp screw too tight or a broken carburetor will result.

Walter Brown
Service Manager


IDLING SPEED ADJUSTMENT
THROTTLE RETURN SPRING
THROTTLE
THROTTLE GUIDE SCREW
CLIP
PLATE
WASHER
METERING PIN
SPRAY NOZZLE
ACCELERATOR PISTON
AND MAIN JET
NOZZLE HOLDER
FLOAT
IDLING MIXTURE ADJUSTMENT
SETTING
ARROW 2 3/4 TURNS UP
SCOUT 3 3/4 TURNS UP



Service Shots

FOR Indian Dealers

Number 210
September 27, 1948

RETURNING PARTS FOR CREDIT OR EXCHANGE

No parts may be returned for credit without the written permission of the Indian Motocycle Company.

The invoice number and date of the original shipment must be given for each part when requesting permission to return.

The standard "Parts Return" form (Number M-710) properly filled in must accompany each shipment.

All parts must be identified by the correct part number.

A handling charge of 10% will be made on all parts with the exception of parts shipped in error by the factory.

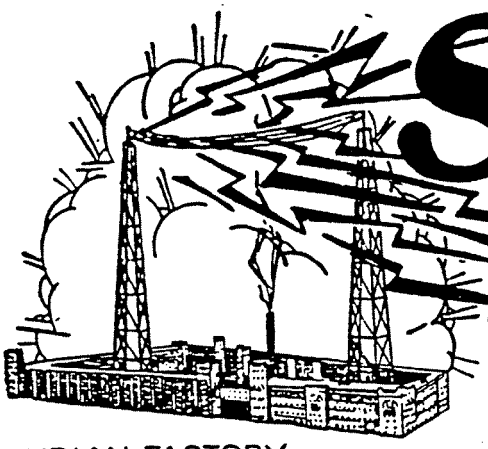
All transportation charges must be prepaid.

Shipments which do not conform with the above instructions will be returned collect.

PARTS BROUGHT TO THE FACTORY

All parts brought to the factory must be left at the Receiving Room platform.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 211
September 27, 1948

MODEL 348 SPEEDOMETER DRIVE

We have received the following information from the Stewart-Warner Corporation on September 8th:

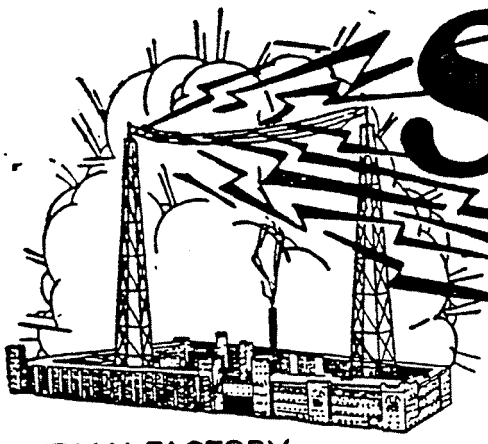
"On August 17th you requested the availability of repair parts for your #388002 speedometer drive, S. W. #142568, and we informed you on August 20th that we were requesting our service division for a list of parts.

"We have recently been advised that the following are the only serviceable parts available on the #412568 drive joint. The rest of the unit is pressed, staked or screwed together in such a manner that it is impossible to service in the field.

Indian Part No.	Description
605008	Nut
102746	Washer
102805	Gear and bushing
102744	Washer

Stewart-Warner Corporation"

Walter Brown
Service Manager



INDIAN FACTORY

Service Shots

FOR Indian Dealers

Number 212 INDIAN DEALER
September 27, 1948

REPLACEMENT OF COLOR-BRITE WAX POLISH AND CLEANER

Complaints have been received that Indian Color-Brite Wax Polish and Cleaner, Accessory No. 163012, is gumming in the cans. These complaints were submitted to the Penetone Company, Tenafly, New Jersey, who manufacture this material for us, and the following report was just received from them.

"The samples of polish you returned to us have been tested, and we have found in every case a decided drop in pH - caused by the can company using an improper soldering flux.

"On contacting the can company, we find they have discontinued this can and are in the process of supplying us with new cans. We definitely feel that all of this material which your dealers are holding in stock should be replaced on a no charge basis.

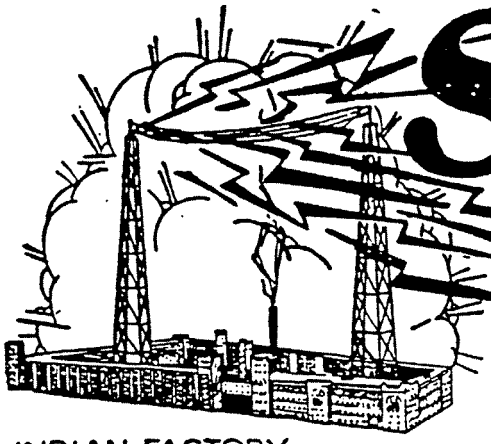
"In order to expedite the replacement of this material, please have each dealer remove the contents of all the cans they have in stock and return the empty cans to us postage prepaid. Upon receipt of the empty cans, we will ship back an equal amount of new Color-Brite Wax Polish and Cleaner - no charge, postage prepaid. Postage on the empty cans will be very little, and if the dealer desires, he may use a can opener and remove the top and bottom of the can, wash out the polish and flatten.

"We guarantee the "Color-Brite" you get in these new cans will be a fine motorcycle wax polish and cleaner your dealers will be proud to sell.

"It is necessary that the dealer return the empty cans for replacement."

We believe the above is self-explanatory and suggest that you immediately remove your stock of Indian Color-Brite Wax Polish and Cleaner and return the empty cans to the Penetone Company, Tenafly, New Jersey, for replacement.

P.S. Make certain that a slip giving your name and address is enclosed with your return shipment to the Penetone Company.



Service Shots

FOR Indian Dealers

No. 213
October 4, 1948

INSTRUCTIONS ON TUNING THE 249 MODEL TO PERFORM SMOOTHLY AT LOW SPEEDS

1. Adjust carburetor according to instructions given in Service Shot No. 209.

   Test carburetor manifold for air leaks by squirting gas on connection. Engine speed will increase if air leaks are present. If test shows air leak at carburetor to manifold connection, loosen carburetor pinch screw and force carburetor tightly against manifold and retighten pinch screw. It will be necessary to readjust carburetor when air leaks have been sealed.

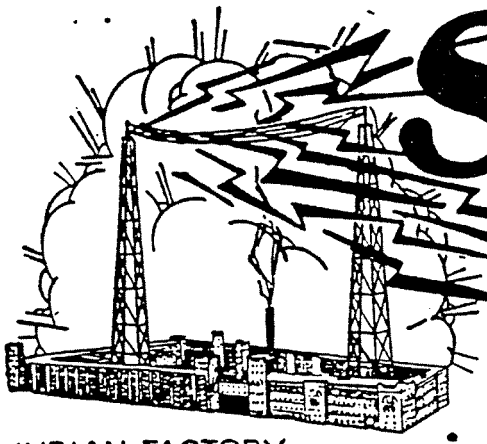
2. Check spark plug. It has been found that the gap should be increased from the .025" recommended to .030"-.035" to obtain smooth performance on slow speeds.

3. Check magneto ignition point gap. It has been found that the Model 249 engines perform smoother when the magneto ignition points are adjusted to .015".

4. Check the clearance between the rocker arm and the valve stem. It has been found that to obtain smooth performance at low speeds, it is advisable to increase the clearance from the recommended .0015" (1-1/2 thousandths), to .0025"-.003" (2-1/2 to 3 thousandths).

   It may be necessary to readjust the carburetor after the spark plugs, magneto points and valve tappets have been readjusted.

Walter Brown
Service Manager



Service Shots

FOR Indian Dealers

Number 214
October 4, 1948

INFORMATION ON MODEL 149-249 FORKS

How to Remove Fork Leg

1. Block motorcycle under front of frame until front wheel clears the floor.
2. Loosen lock nut and remove cable from front brake cam lever.
3. Remove threaded cable stop screw from lug at lower end of right fork leg and pass cable back through slot in lug until clear of fork.
4. Remove brake anchor nut and washers.
5. Remove axle nut from left side of front wheel and remove axle bolt from right side.
6. Remove front wheel from fork legs.
   Note: On some machines a spacing washer is used between the hollow axle and the left fork leg.
7. Remove the three mud guard brace bolts that are attached to the fork side being removed.
8. Remove the pinch bolt clamping the fork leg in the fork stem lower bracket.
   Note: It is mounted at the rear of the fork bracket next to the fork cover tubes.
   Note: It may be necessary to wedge open the split end of the bracket in stubborn cases of fork leg removal.
9. Remove cap nut from top end of fork leg.
10. Use hammer and brass drift to drive fork leg down from its taper seat in upper stem bracket.
11. Pull fork leg down till clear of lower bracket.

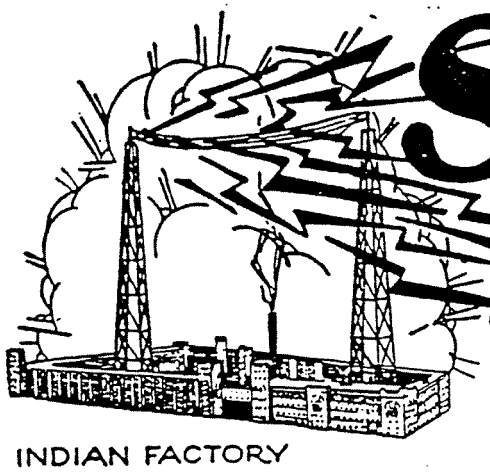
How to Assemble Fork Leg

1. Push fork leg up through lower stem bracket into tapered seat in upper bracket.
   Note: It may be necessary to bump lower end of fork upward and also necessary to wedge open the split portion of the lower bracket slightly.
2. Assemble the anchor screw into the upper threaded end of the fork leg through the upper bracket. Tighten securely.

3. Remove wedge, if any, and install and tighten the clamp screw in the lower bracket to firmly support the fork leg.
4. Install front wheel, entering brake anchor stud into the anchor boss on lower end of right fork and push axle through forks and wheel from the right side to the left.
   Note: A spacing washer may be needed between the hollow axle and left fork leg if any clearance is apparent. If the axle bolt draws the fork legs inward, they may bind.
5. Tighten front axle.
6. Install and tighten brake anchor stud nut and washers.
7. Fasten the mudguard brace bolts to the fork leg.
8. Slide brake cable into slotted anchor boss and return cable stop screw to its former position.
9. Enter brake cable adjusting screw into brake cam lever, adjust, then tighten lock screw.
10. Remove motorcycle from blocking.
11. Bounce fork to test for freedom.
12. If tight, loosen front axle nut and test.
13. If improved, front axle needs a spacer washer.
14. Tighten front axle.

How to Refill Fork Legs with Fluid

1. Remove fork member and upper bracket anchor cap. This is the hex. headed cap at the extreme top end of the fork sides.
2. Screw an 8" rod with 8-32 threads into the upper end of the plunger rod (a wheel spoke can be used).
3. Remove special nut from the end of the plunger rod. The plunger rod will drop inside the fork about 4", but you will be able to pull it back up by means of the threaded rod you have screwed in the end of it.
4. Remove front axle.
5. Remove fork plunger nut from inside of forging at the end of fork leg.
6. The fluid may be drained out by pushing up on the lower end of the plunger rod.
7. After the fluid has been drained out, replace the nut and tighten it.
8. Replace front axle.
9. Pour slowly 8 ounces (1/2 pt.) of Love-Joy type of shock absorber fluid in through the top end of the fork.
10. Pull plunger rod up into position by means of the 8-32 threaded rod, assemble and tighten special nut and replace anchor cap.



Service Shots

FOR Indian Dealers

Number 215
October 11, 1948

HOW TO OVERCOME FLUID LEAKS ON MODEL 149-249 FORKS

There are three points on each front fork side where there is a possible chance for fluid to leak out.

1. At the fork spring lower seat gasket (1454003). This gasket is located at the extreme lower end of the fork between the fork plunger and the fork lower tube.

   It will be necessary to replace gasket #1454003 when there is a leak at this point, making sure the metal surfaces are clean and free of chips and dirt.

2. At the fork bearing oil seals (#1762004) two (2) used. These seals are located in the top end of the fork lower tube.

   It will be necessary to disassemble the fork from the motorcycle, take the fork apart and inspect the seals for irregular surfaces. Clean the seals that may have dirt imbedded in them and replace the seals that may be damaged. Apply shellac or gasket compound to the outside surface of the seals when reassembling them.

3. At the fork member and upper bracket anchor cap (#1284007) cadmium plated on 149 models and #1284008 chrome plated on 249 models). This is the hex headed cap at the extreme top end of the fork sides.

   Remove the hex head caps and apply shellac or gasket compound to the threads, screw back into place and allow time for the shellac or gasket compound to set before using the motorcycle.

There are no mechanical adjustments in the Model 149-249 forks.

145

Walter Brown

Number 216
October 11, 1948

INFORMATION ON MODEL 149-249 FORK LEG

How to Disassemble the Model 149-249 Fork Leg:

1. Remove special plunger rod nut at top end of fork member.
2. Remove lock wire from groove in top of lower fork member above the oil seals.
3. Pull up on the upper tube to bump the bushing and oil seals free from the top of lower tube.
4. Lift out the fork spring.
5. Pour the fluid out of the lower tube.
6. Remove fork plunger nut from inside of forging at the end of the fork leg.
7. Remove fork plunger.
8. Remove rubber bumper ring from inside lower tube. (The fork leg is now completely disassembled.)

How to Reassemble the Model 149-249 Fork Leg:

1. Hold the lower fork tube in a vise at the lower fitting.
2. Drop rubber bumper ring inside lower tube.
3. Coat the lower spring seat gasket with grease to hold in position, place on plunger rod and assemble rod into lower fork tube. Install the lockwasher and nut--tighten firmly.
4. Pour eight ounces (1/2 pt.) of Love-Joy type shock absorber fluid into the lower tube and place the springs over the plunger rod.
5. Screw the plunger rod assembling tool (#150108) or wheel spoke in the end of the plunger rod and assemble the upper

tube over the rod into the lower tube. Guide the flat-sided end of the plunger rod into position through the hole at the upper end.

6. Compress the spring and install the lockwasher and nut on the plunger rod. Remove the tool or spoke and tighten the nut.

7. Apply shellac or gasket compound around the outside surfaces of the bushing and oil seals.

8. Place the bushing and then the oil seals, with the lips of the seal down, over the upper tube.

9. Slide the bushing and the two seals down into the lower tube and push into position.

10. Install the seal retaining ring, using care to be sure it is fully seated in the groove.

NOTE: Arrows with engine numbers below ADI-2594 and Scouts with engine numbers below BDI-1185 do not have the rubber bumper ring assembled in the fork legs.

Walter Brown
Service Manager

S E R V I C E N O T I C E

We appreciate the fine cooperation we are receiving from you dealers in sending in reports on the 149 and 249 models.

You may assist us further by being sure that the engine numbers and speedometer readings are included.

Please use Form S-10 when sending in reports on the new models. These forms will be supplied at your request.

Thank you.

Walter Brown
Service Manager

147.

Number 217
October 18, 1948

NEW WASHER FOR LOCKING GAS CAP

Some difficulty has been experienced in gas leaking between the tank and the cap on the new Indian Keyless Locking Gas Cap.

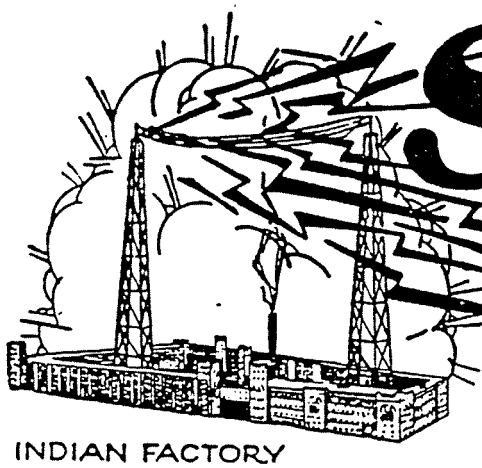
A large solid sheet washer (Part 160047) has been developed to fit between the cap and the fibre washer which entirely eliminates this leakage when the tank is filled to the bottom of the cap strainer.

All caps now being shipped include one of these washers, and if you will advise us the number of washers you need for caps in stock and on the road, they will be sent to you immediately, no charge, postage prepaid.

To remove any caps on motorcycles, merely use a strap or pipe wrench with a piece of heavy cloth around the jaws so as not to scratch the chrome, and remove the cap very slowly. Insert the new washer and tighten until the cap is firm and in the correct position.

These Indian Keyless Locking Gas Caps are an attractive and useful accessory and can be sold in large quantities, provided you repair any caps which are in the field. We recommend that you service these caps in the field with this new washer to insure satisfied customers who wil recommend this accessory.

Service Department



Service Shots

FOR Indian Dealers

Number 218
November 15, 1928

FAST SERVICE ON ADJUSTMENT PARTS !!!

We will be able to give prompt service on all requests for the parts you require because of damage, shortage or failure, if you will send such requests directly to the Service Manager here at the factory. This specifically includes parts required to:

(1) to replace those damaged in shipment,
(2) to replace those missing in shipment,
(3) to replace those covered by our guarantee.

Please do not write such requests in other letters or reports to any other member of the Indian organization.

When you have occasion to request such parts, list them on our standard Part Order Form (M-720), and show the proper part number and description, so that replacements can be made without delay. Attach this Part Order Form to your letter of explanation and mail to the Service Manager, Indian Motocycle Company. When damaged or broken parts must be returned for inspection and decision, attach our standard M-709 tag to each part and report in detail on Form M-710 as required.

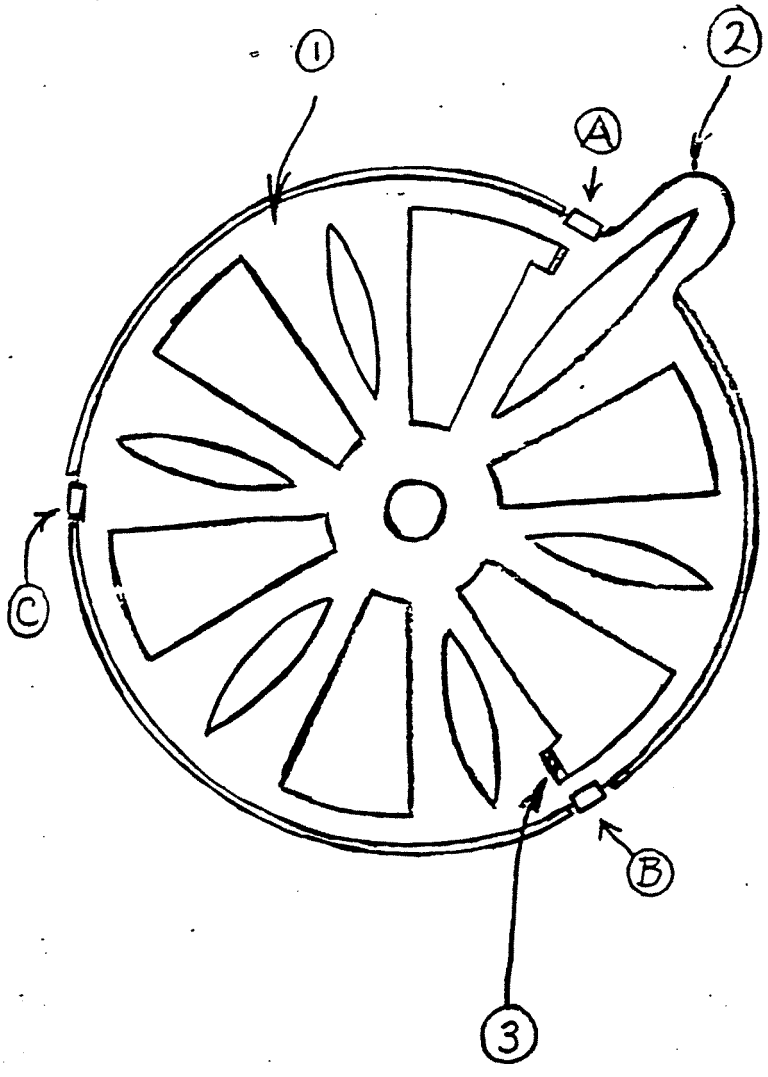
Good customer relations depend on good service. We - out to give you the fastest service possible on adjustments and have set up this procedure to help you. Please cooperate by following these channels.

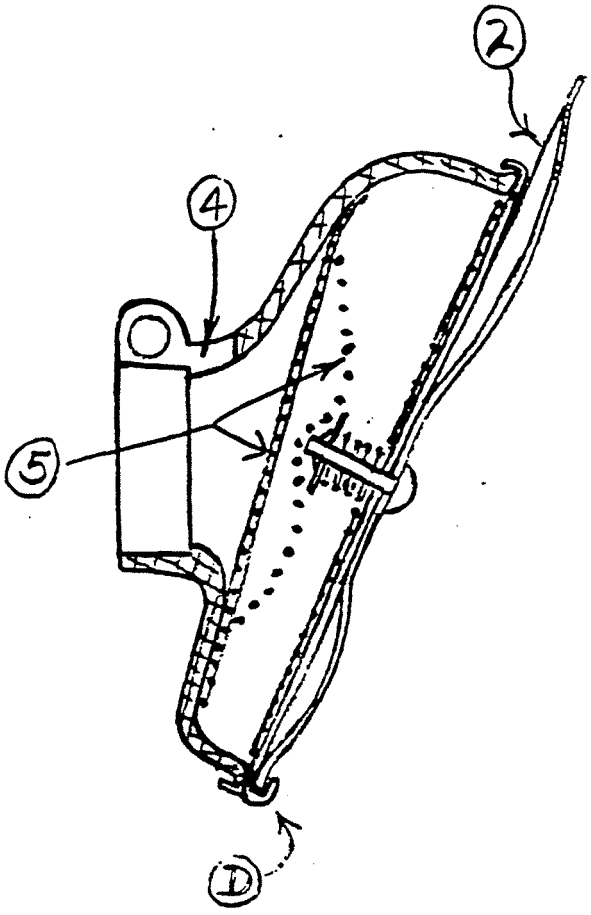
Walter Brown
Service Manager

149.

NOTE: To obtain maximum performance and top speed, force the screen and air cleaner element (No. 5) as far back from the carburetor air intake mounting hole as possible. This will prevent the element from blocking the free passage of air into the carburetor.

Walter Brown
Service Manager





152.

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-1
March 31, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

VALVE ROCKER ARM SHAFT LUBRICATION

The valve rocker arm shaft and bearing are lubricated by oil supplied under pressure from the oil pump through the oil transfer lines and metered rocker arm shaft screw to the rocker arm shaft and bearing.

When there is a sign of insufficient lubrication at the overhead valve mechanism, indicated by a squeak or other unusual noise, the oil transfer lines and rocker arm shaft screws must be checked.

A) Oil transfer lines: With the engine running at idle speed, loosen each rocker arm shaft screw, one at a time, one-half turn, to make sure oil flows at each oil line fitting. If no oil bleeds from any one of the fittings when the screws are backed off as the engine is idling, the oil line is plugged. It will be necessary to remove the oil line and replace it with a line that is clear.

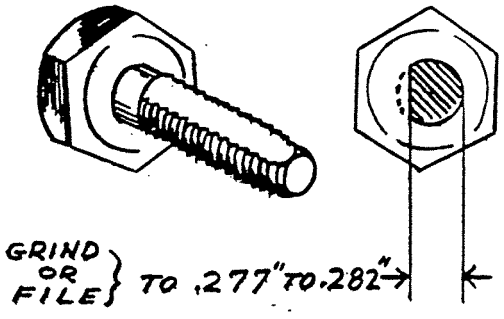
Part #1,568003 Oil Transfer Line - Model 149
Part #1,568004 Oil Transfer Line - Model 249

B) Rocker Arm Shaft Screw: When oil bleeds at all oil line fittings, it shows that lubrication is flowing up to each rocker arm shaft screw. To assure positive lubrication to the rocker arm shaft bearings and valve stems and push rods, remove each rocker arm shaft screw and grind or file a flat on the screw, as shown in the sketch below.

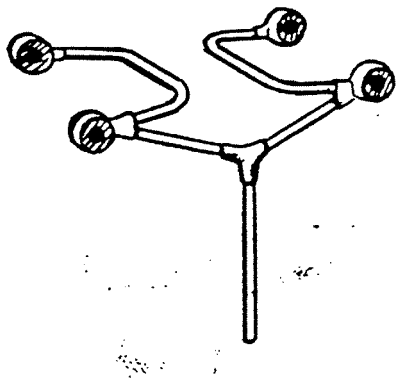
NOTE: BE SURE TO INSPECT SHAFT SCREW GASKETS AND REPLACE IF NECESSARY.

#1761006

ROCKER ARM SHAFT SCREW



OIL TRANSFER LINE



Walter Brown
Service Manager

153.

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-2
March 31, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

GENERATOR FIBER IDLER GEAR BREAKAGE

The generator fiber idler gear fails when there is no back lash between the generator gear and the fiber gear. Therefore, when replacing a fiber gear, make sure there is back lash between the two gears before assembling the cam case cover.

I. TO CHECK FOR BACK LASH IN THE GEARS

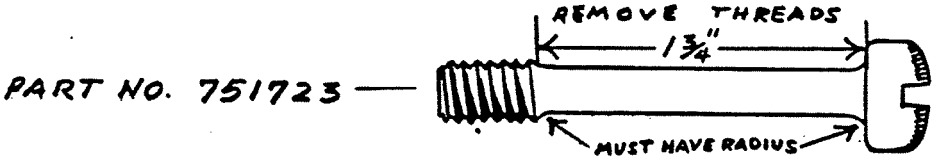
A) Assemble and tighten generator in position with three screws, using spacing washers in place of cam case cover.

B) Feel for back lash — gears must have slight movement.

C) When no movement is present, there are three ways to get gear tooth clearance:

1. With three screws drawn up snug, raise generator to uppermost position and tighten screws. (Check for back lash.)

2. Reduce the diameter of the screws, as per sketch, which will allow generator to be raised to obtain proper gear mesh.



3. Increase the size of the three generator screw holes in the crankcase and cam case cover from 21/64" to 23/64" so the generator can be moved to obtain proper gear mesh or back lash.

NOTE: It may be necessary to perform operations #1 and #2.

After the cam case cover is assembled on, hold the generator in uppermost position and tighten three generator mounting screws.

The back lash may be rechecked by removing the band on the generator and reaching in and feeling for back lash by rocking the armature back and forth.

Inspect replacement or original idler gears -- when there is clearance at fiber gear to steel gear locking pin -- redrill pin holes so the pin fits line to line in both gears.

154.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-3
April 18, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

OIL SEEPAGE FROM TANK TO CRANKCASE ON 149-249 MODELS

There are two points where oil from the tank may seep by and fill up the crankcase when the machines are parked overnight or longer.

(A) The oil may leak by the oil passage check valve, as explained in Service Shot #295. The valve may be seated and the valve spring stretched to prevent leakage at this point.

(B) The oil may seep at the clearance between the hub of the oil pump drive gear and the oil pump cover. An "O" ring seal has been added to prevent oil seepage at this point.

I. NEW PARTS REQUIRED: (These may be ordered from our Parts Department or your distributor.)

1 - #1351001 Oil Pump Cover (countersunk for "O" seal)
1 - #1762011 Oil Pump Cover Seal ("O" ring seal)
1 - #1927025 Oil Pump Cover Seal Washer

The original oil pump cover may be returned for adjustment with Form M-709.

II. INSTRUCTIONS:

(A) Remove timing gear case cover.
(B) Remove oil pump drive gear.
(C) Remove oil pump cover.
(D) Install new cover with "O" seal and washer.
(E) Reassemble oil pump drive gear.
(F) Reassemble timing gear case cover.

NOTE: The two dowels in the oil pump have been discontinued in present production. Therefore, you will find it necessary to drill or ream the holes in the new covers to fit over the dowels.

III. TO INSTALL THE NEW COVER:

(A) Ream the hole in the cover to 5/16".
(B) Assemble the cover in place over the shaft and dowels.
(C) Install screws and tighten up evenly, rotating the shaft as screws are being tightened.
(D) Back off the screws one-half turn and assemble gear. Rotate gear to line up the cover and tighten the one screw that can be reached with the gear on the shaft.
(E) Remove gear and tighten the rest of the screws.
(F) Assemble gear, lockwasher and nut. Rotate gear to make sure it turns free and tighten nut.

Walter Brown 155.
Walter Brown
Service Manager

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I - 4
April 25, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

HOW TO START THE ARROW AND THE SCOUT

Reports from the field indicate that some difficulty is being experienced in starting the 149-249 models when the temperature is low and the engines are cold. We find that when the procedure outlined below is followed, the engine will start right away.

A) Open the gas tank petcock (make sure there is gas in the right side of the tank). When the gas is low, it can be seen in the left side of the tank but the right may be dry. Lean the machine to the right, to allow the gas to flow across the partition between the two sides.

B) Turn the switch key to the "on" position.

C) Close the air cleaner cover or choke. (Be sure to convert the air cleaner and choke, as explained in Service Shot No. 219.)

D) Raise the gas level in the carburetor by pushing down the button on the top of the carburetor bowl.

E) Straighten the machine up off the jiffy stand and lean slightly to the right. (This raises the gas level in the carburetor body so it can be drawn up instantly.)

F) Whip the throttle open and close three or four times. (This action pumps gas into the venturi.)

G) Open the throttle <u>just enough</u> to raise the metering pin off the idle mixture seat, or approximately 1/4" movement of the grip. (Be sure the slack is "taken up" in the throttle cable by making an adjustment at the top of the carburetor.) When the throttle is just opened slightly, the manifold vacuum or suction is great. This draws gas into the combustion chamber instantly, ignites, and the engine starts right away. Now press down firmly on the kickstarter.

H) When the engine starts, let it run at a fast idle until the manifold warms up and the engine takes the throttle without spitting back.

I) If the engine runs a few revolutions and stalls, it will be necessary to repeat steps D, E, F, G and H.

In case the engine <u>does not start</u> and <u>continue to run properly</u> after this procedure is followed, then it may be necessary to make one or more of the following inspections:

I. INSPECT FOR SPARK AT THE SPARK PLUG WIRE:

A) Remove the wire, wedge wire between spark plug porcelain and cylinder head fin and adjust so the wire terminal is approximately 3/16" away from the fin.

B) Kick the engine over; if spark jumps, the magneto is OK. (Check for spark at each spark plug.) If the spark is weak, or if there is no spark, it will be necessary to inspect the magneto.

II. INSPECT THE MAGNETO:

A) Remove magneto cover.

B) Inspect contact points and wipe clean. (Excess oil from cam wiping felt gets on points.)

C) Check contact point gap - it should be .015".

D) Inspect coil ground wire — it may be loose or broken. (Some coils are grounded internally and the ground is not visible.)

E) Replace coil if necessary.

F) Check rotor. Be sure spring clip is intact and drive tongue is not broken.

G) Check condenser.

III. INSPECT SPARK PLUGS:

A) Remove spark plug.

B) Attach wire, and lay plug against cylinder head.

C) Kick over engine.

If there is a good hot spark at the wire and none at the spark plug, replacement of spark plug is necessary.

IV. INSPECT CARBURETOR:

A) Remove nozzle holder (as shown on Page C-20 in the 149-249 Manual), clean and check gasoline flow. (After the nozzle holder is replaced, check idle mixture adjustment as per instructions on Page C-23 in the Service Manual.)

B) Make final adjustment after the manifold warms up.

V. CHECK EACH CYLINDER FOR COMPRESSION:

A) Push against the kickstarter crank slightly; if the pedal gradually works down, compression is leaking by the valve seat.

B) Adjust the valve clearance to .0025" to .003" when the weather is normal, and .003" to .004" when the weather is below freezing. If the seats are bad, it will be necessary to remove the head and reface the valve and valve seat.

NOTE:

A) Make sure the proper grade of oil is in the oil tank, transmission and primary drive.

B) Use high test gasoline for quick starting and best performance.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-5
May 2, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

OIL FEED TUBE - OIL RETURN TUBE - FROM OIL TANK TO OIL PUMP

More durable oil tubes are being assembled on 149 and 249 models. The outside diameter of the latest tubes is larger than the original ones; therefore, larger clamps are required.

1 - #1894007 Oil Feed Tube
1 - #1894008 Oil Return Tube
4 - #1309012 Oil Tube Clamps

These parts may be ordered from our Parts Department or your distributor on regular Part Order Blanks (Form M-720).

It will be necessary to inspect the oil tubes on the new 149 and 249 models you have in stock and those you have sold. Order tubes and clamps, to replace the ones that show signs of cracking or deteriorating, from our Parts Department or your distributor on regular Part Order Blanks (Form M-720).

The oil tubes and clamps you remove may be returned for adjustment with Forms M-709 filled in.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-6
May 16, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

FRONT FORK IMPROVEMENTS ON 149-249 MODELS

I. Three improvements have been made in the forks to prevent fluid loss and overcome metallic contact at the top and bottom of the fork travel.

A) 2 - #1762010 Fork Fluid Seal

This spring loaded fluid seal is being assembled in place of the original top seal, which has no spring, to assure a more positive seal where the sliding action takes place on the fork leg.

B) 2 - #1796010 Fork Plunger Recoil Sleeve

This sleeve has been incorporated in the plunger assembly (#1892004) to improve the fork action and to overcome the metallic noise on the rebound.

C) 2 - #1710013 Rubber Impact Cushion

This part has been added to overcome the metallic noise when the fork leg reaches the bottom of its travel.

These parts may be ordered from our Parts Department or your distributor on regular Part Order Blanks, Form M-720.

II. INSTRUCTIONS

A) Remove the fork leg members from the motorcycle (refer to Service Manual, Page I-43, for detailed instructions).

B) Disassemble the fork legs.

C) Convert fork plunger, as shown and explained on the attached sketch. (Be sure to remove all flux and excess brass or solder before reassembling.)

D) Reassemble fork legs.

1) Clean the seal seat in the lower fork tube thoroughly.

2) Place the impact cushion in the lower tube.

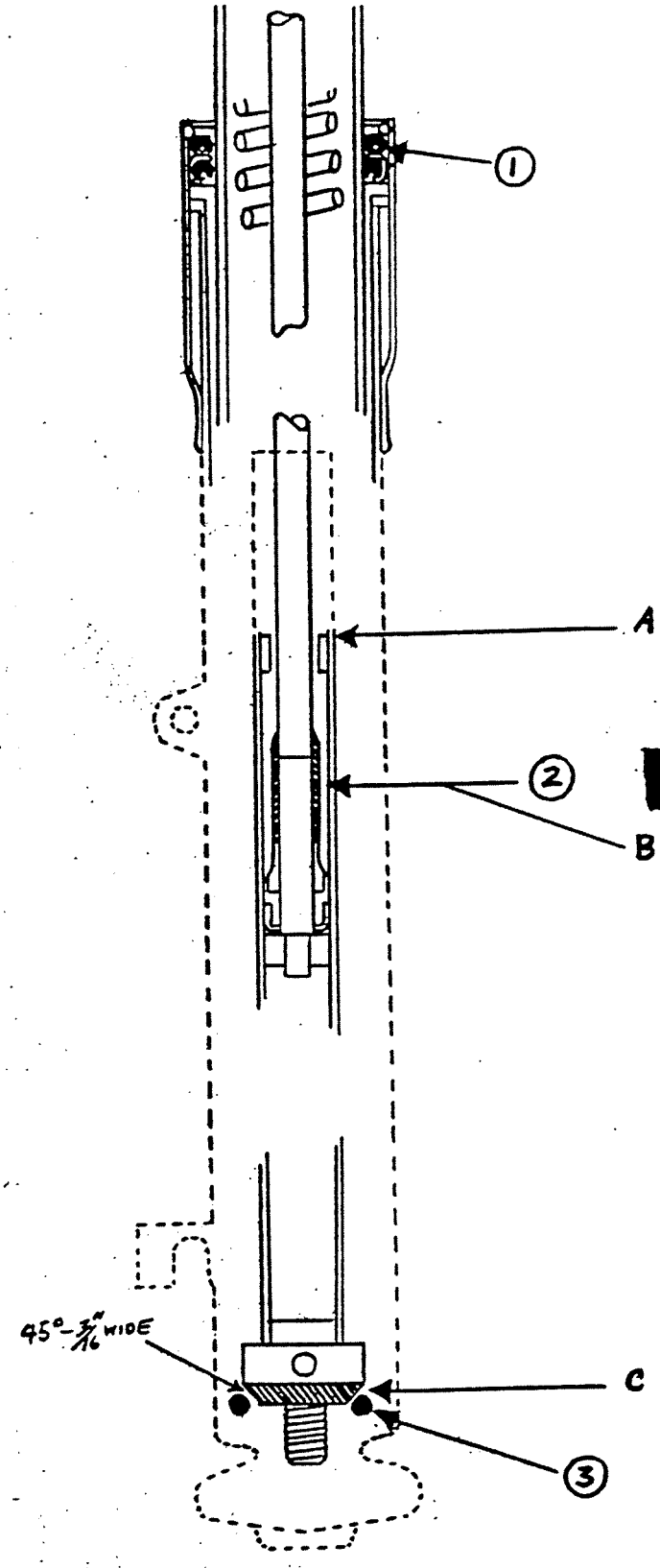
3) Coat the spring seat gasket with sealing compound and place it on seat at the end of the plunger assembly.

4) Assemble the fork plunger assembly into the lower fork member.

5) Assemble the lockwasher and nut, then tighten securely.

159.

FRONT FORK IMPROVEMENTS ON 149-249 MODELS



1762010 - FLUID SEAL (spring loaded)
Install spring seal on top with lips pointed down. Tap gently in place to avoid damage to seal.

CONVERTING FORK PLUNGER
Saw off plunger tube flush with upper bushing.

1796010

[redacted] FORK PLUNGER RECOIL SLEEVE

Slide sleeve over plunger rod and push down against upper stop. Then braze or solder in place.

Grind or turn down in a lathe as shown to provide space for impact cushion.

1710013 - RUBBER IMPACT CUSHION

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

PARTS BULLETIN 1-3
May 23, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers

SUBJECT: PRICE CHANGES - PARTS PRICE LIST ISSUED NOVEMBER 1, 1948 .....

Please correct your Parts Price List issued November 1, 1948 to show the following new prices, effective immediately:

Part No.	Description	New Net Prices	New List Prices
H-23142	Spoke Nipple		$ .06
			(50 Lot) 2.20
19A49	C. S. Bushing Spacer		.65
19A59	C. S. Gear Bushing		.65
22B61	Conn. Rod Bushing - Lower		.80
25B28	Sliding Gear		7.45
25B187	Valve Guide		.40
27B2	Conn. Rod Bushing - Upper		.65
35B285	Spoke Nipple		.06
			(50 Lot) 2.20
27C74	Head Gasket		.40
38062	Countershaft Gear		16.50
38665	Drive Shaft		5.50
39348	Pinion Shaft		6.00
39586	Pinion Shaft		6.50
40899	Valve Guide		1.30
41043	Drive Shaft		3.55
41044	Drive Shaft		3.75
42593	Rocker Arm Stud		2.85
42603	Generator Belt		1.00
43647	Valve Guide		1.10
44287	Pinion Shaft		6.00
44318	Valve Guide		1.30
74022	Head Gasket		.40
75191	Head Gasket		.40
75348	Fork Spring Assembly		12.50
75461	Piston, Std. Indian 4		6.00
75461-U	Piston, .010 O.S. Indian 4		6.00
75461-W	Piston, .030 O.S. Indian 4		6.00
75461-X	Piston, .040 O.S. Indian 4		6.00
75461-Y	Piston, .050 O.S. Indian 4		6.00
75461-Z	Piston, .060 O.S. Indian 4		6.00
75494	Piston, Std. 30.50 - 741		6.50
75494-T	Piston, .005 O.S. 30.50 - 741		6.50
75494-U	Piston, .010 O.S. 30.50 - 741		6.50
75494-V	Piston, .020 O.S. 30.50 - 741		6.50
75494-X	Piston, .040 O.S. 30.50 - 741		6.50

Part No.	Description	New Net Prices	New List Prices
75494-Y	Piston, .050 O.S.	30.50 - 741	6.50
75494-Z	Piston, .060 O.S.	30.50 - 741	6.50
86516	Piston, Std.	Chief	7.50
86516-T	Piston, .005 O.S.	Chief	7.50
86516-U	Piston, .010 O.S.	Chief	7.50
86516-V	Piston, .020 O.S.	Chief	7.50
86516-W	Piston, .030 O.S.	Chief	7.50
86516-X	Piston, .040 O.S.	Chief	7.50
86516-Y	Piston, .050 O.S.	Chief	7.50
86516-Z	Piston, .060 O.S.	Chief	7.50
86516 SF	Piston, Semi-finished		7.50
86517	Piston, Std.	Sport Scout	6.50
86517-T	Piston, .005 O.S.	Sport Scout	6.50
86517-U	Piston, .010 O.S.	Sport Scout	6.50
86517-V	Piston, .020 O.S.	Sport Scout	6.50
86517-W	Piston, .030 O.S.	Sport Scout	6.50
86517-X	Piston, .040 O.S.	Sport Scout	6.50
86517-Y	Piston, .050 O.S.	Sport Scout	6.50
86517-Z	Piston, .060 O.S.	Sport Scout	6.50
86517 SF	Piston, Semi-finished		6.50
86529	Piston, Std.	Chief-Bonneville	7.50
86529-T	Piston, .005 O.S.	Chief-Bonneville	7.50
86529-U	Piston, .010 O.S.	Chief-Bonneville	7.50
86529-V	Piston, .020 O.S.	Chief-Bonneville	7.50
86529-W	Piston, .030 O.S.	Chief-Bonneville	7.50
86529-X	Piston, .040 O.S.	Chief-Bonneville	7.50
86529-Y	Piston, .050 O.S.	Chief-Bonneville	7.50
86529-Z	Piston, .060 O.S.	Chief-Bonneville	7.50
86529 SF	Piston, Semi-finished		7.50
86530	Piston, Std.	Sport Scout-Bonneville	6.50
86530-V	Piston, .020 O.S.	Sport Scout-Bonneville	6.50
86530-W	Piston, .030 O.S.	Sport Scout-Bonneville	6.50
86530-X	Piston, .040 O.S.	Sport Scout-Bonneville	6.50
86530 SF	Piston, Semi-finished		6.50
600002	Spoke Nipple		.06 (50 Lot) 2.20
642011	Piston, Std.	Sport Scout-Competition	7.50
642011-U	Piston, .010 O.S.	Sport Scout-Competition	7.50
642011-V	Piston, .020 O.S.	Sport Scout-Competition	7.50
642011-W	Piston, .030 O.S.	Sport Scout-Competition	7.50
642011-X	Piston, .040 O.S.	Sport Scout-Competition	7.50
785001	Hydraulic Shock Absorber		15.20
1,175003	Rocker Arm Service Kit		5.40
1,347008	Sump Cup Service Kit		1.45
1,348001	Cylinder		26.50
1,348002	Cylinder		14.25
1,452001	Head Gasket		.25 (10 Lot) 2.00
1,455010	Gasket		.05 (10 Lot) .35

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-8
MAY 30, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

HANDLEBAR SUPPORT BRACKET FOR 149-249 MODELS

This part was not listed in our 149-249 Model Parts List as a separate item. It was included in the handlebar complete assembly.

The handlebar brackets are now available and may be ordered from our Parts Department according to the part number and description shown.

1 - #1229003 Handlebar Support Bracket - $2.45 list.
(This item is available for immediate delivery.)

INSTRUCTIONS ON ASSEMBLY:

1. Insert a steel rod of proper size in hole "A" and spread opening "B" just enough to allow it to pass over the small diameter of the handlebar, approximately .870" or 7/8". CAUTION: Do not spread clamp more than specified. Undue flexing of clamp will cause breakage.

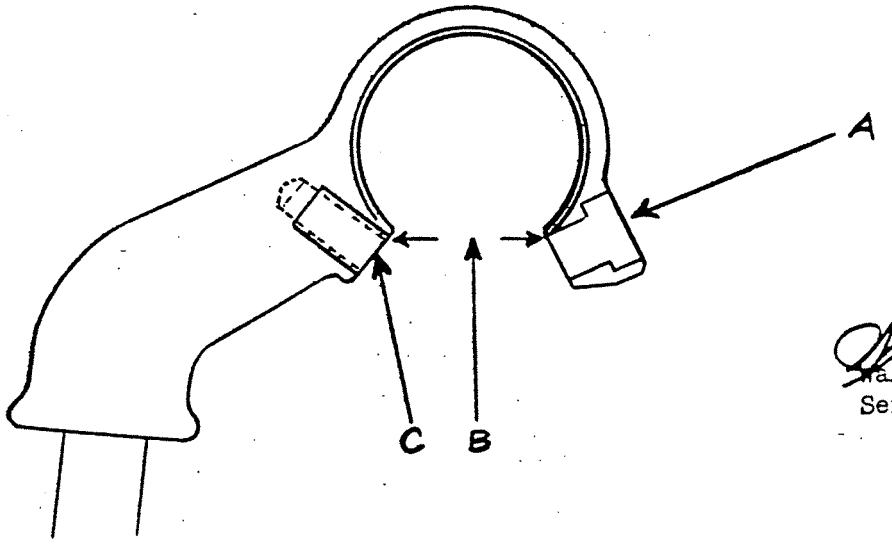
2. Close the clamp carefully by inserting rod in clamp screw hole "A" and use as a lever to "roll" clamp closed until the opening "B" is about 1/8" wide and holes "A" and "C" are in line. NOTE: AVOID RE-OPENING CLAMP ONCE CLOSED.

3. Install the pinch screw.

4. Assemble the handlebars on the machine and tighten the clamp stud nuts.

5. Adjust the handlebar position and tighten the pinch screw in the handlebar support brackets.

HANDLEBAR SUPPORT BRACKET



Walter Brown
Service Manager

164.

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-10
JUNE 20, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

OIL LOSS THROUGH CRANKCASE BREATHER

When there is a noticeable amount of oil being lost out through the crankcase breather and the engine smokes out through the exhaust at 50 m.p.h. and over, there is too much oil in the crankcase.

There are four conditions that cause the crankcase to load up with oil and result in high oil consumption.

1. A sump plug screen that is partially or totally clogged with foreign material.

2. A sump plug that is loose or has a bad gasket surface.

3. A pinion shaft seal that has worked out of the cam case cover.

4. Rocker arm shaft screws that have too wide or deep a "flat" ground on them.

The above conditions can be corrected as follows:

1. The sump plug may be removed and washed clean and replaced, making sure the gasket is in good condition and the surfaces on the crankcase and sump plug are flat and clean.

2. A sump plug that is loose should be removed and washed clean. The surfaces and gasket must be inspected before reassembling and tightening. Any rough area on the crankcase or sump plug must be filed smooth and the gasket replaced if not in good condition.

3. When the pinion shaft seal works out of the cam case cover, it will be necessary to press it back in place and stake or punch the aluminum around the edge of the seal to hold it firmly in place.

4. When the rocker arm shaft screws allow too much oil to flow into the rocker boxes, it will be necessary to replace them with screws that measure according to the dimensions given (.277" to .282") in Service Bulletin I-1.

NOTE: The "flat" shown in the sketch is exaggerated, so be sure to "mike" the screws.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN MOTOCYCLE COMPANY
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-11
JUNE 20, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

149- 249 MODEL OIL SPECIFICATIONS

The oil recommendations given in the Arrow and Scout Riders' Instruction Book are not complete. The atmospheric temperatures in different parts of the country vary considerably. Therefore, it is very important to use the correct grade of oil.

RECOMMENDED GRADES OF INDIAN OIL FOR ARROW AND SCOUT:

ENGINE AND TRANSMISSION

Below 0° F.	Use S.A.E. #10-W
Between 0° F. and 32° F.	Use S.A.E. #20-W
Between 32° F. and 60° F.	Use S.A.E. #30
Above 60° F.	Use S.A.E. #50

Recommendation for breaking in: Use one grade lighter than indicated by temperature down to #10-W. Do not exceed 40 M.P. H. during first 500 miles of running, after which time change to the correct grade of oil.

IMPORTANT: The engine must be idled long enough to warm up the oil in the tank and circulate through the oiling system before starting off.

PRIMARY DRIVE AND CLUTCH

All temperatures — Use S.A.E. #10-W

ALWAYS USE INDIAN OIL.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-12
August 1, 1949

TO ALL: Home Office Divisions
Home Office Marketing Depts.
Field Sales Personnel
Distributors
Dealers (2)

SUBJECT: GENERATOR DRIVE GEAR

A steel generator drive gear has been made to replace the fiber gear formerly used. These gears may be ordered from our Parts Department or from your parts distributor.

Part No. 1,462015 Generator Drive Gear $3.25 list
(This item is available for immediate delivery)

INSTRUCTIONS FOR INSTALLATION

1. Remove the cam case cover and pull the Generator idler gear cluster off the stud.
2. Remove the retaining ring, spring washer, friction washer, and fiber gear. Discard the spring washer.
3. Clean the steel gear and inspect the drive pin hole. If the hole is damaged and the surface of the gear rough - smooth the surface of the gear.
4. Install the drive gear. Using the pin hole as a guide, drill a new hole 1/8 inch in diameter and 3/16 inch deep in the other gear.
5. Install the pin, friction washer, retaining ring. The spring washer is not used.
6. Place the gear cluster on the stud and install the cam case cover.
7. IMPORTANT: Check the Back Lash In the Gears, As Shown On the Attached Service Bulletin.

GENERAL INFORMATION

In all installations use the original idler gear and shaft assembly to assure proper tooth mesh between the intake cam shaft gear and the idler gear. Never replace a gear in the cam case without checking the finish on the other gears. Gears which are cadmium plated must not be used in combination with unplated gears and vice versa.

The following parts are used in the assembly of the gear.

1638005	Drive pin
1917001	Friction washer
1710004	Retaining ring

The needle bearings may be replaced if found to be worn.

191002	Needle bearing

Press the needle bearings in from each end of the idler gear shaft until the bearing case is just below the surface of the shaft. NOTE: When installing needle bearings, apply pressure on the end of the bearing case which is marked with the bearing number. Pressing on the unmarked end will collapse the bearing case.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN I-14
August 15, 1949

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

GEAR RATIOS: MODEL 149-249

The gear ratios listed can be obtained by using the transmission sprockets and rear wheel sprockets as shown. The rear wheel assemblies and sprockets are interchangeable between models.

Countershaft Sprocket	Rear Wheel Sprocket Model 249-41 teeth	Model 149-42 teeth
14	7.26	7.43
15	6.77	6.94
16	6.35	6.51
17	5.98	6.12 Std.
18	5.65	5.78
19	5.35 Std.	5.48
20	5.08	5.20

To find ratio in any gear --
Multiply the final drive ratio above by --
2.78 for 1st gear
1.91 for 2nd gear
1.21 for 3rd gear
Example: To find 1st gear ratio for Model 149 std.
6.12 x 2.78 = 17.01 : 1

The countershaft sprockets may be ordered from the Parts Department or your Parts Distributor. List price is $3.95 per sprocket. Full range of sizes is shown below:

1817008	Transmission sprocket	14 teeth
1817009	" "	15 teeth
1817005	" "	16 teeth
1817003	" "	17 teeth
1817006	" "	18 teeth
1817004	" "	19 teeth
1817007	" "	20 teeth

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

MOTORCYCLE SERVICE BULLETIN 2-1
September 12, 1949

TO ALL: Home Office Divisions
Home Office Marketing Dept. Managers
Field Sales Personnel
Dealers (2)

SUBJECT: ADAPTION OF REAR WHEELS FOR COMPETITION MODEL 249

To make a greater range of gear ratios available for competition, a Model 741 rear hub (Part 86707) may be used on the 249. This change makes it possible to use the full range of rear wheel sprockets, as on the 45" competition Sport Scout.

MODEL 741 WHEEL (Part 86706):

Lace the wheel, using —

1 - 86707	Hub - 741 Model
1 - 74549	Rim - (1936 to 1942 45" Sport Scout and 741 Model)
20 - 39601	Spoke - Brake drum side (1936 to 1942 45" Sport Scout)
10 - 43769	Spoke - Hub shell side - inside (741 Model)
10 - 43770	Spoke - Hub shell side - outside (741 Model)
40 - H23142	Nipple - (1936 to 1942 45" Sport Scout and 741 Model)

Offset the outside of the rim 1-1/4" from the outside face of the brake drum flange to bring the center of the rim on the center line of the motorcycle.

Use a 1/4" spacer on the right side of the hollow axle and a 1/8" spacer on the left side to align the wheel sprocket with the transmission sprocket.

Walter Brown
Service Manager

Motorcycle

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-15
September 26, 1949

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

149-249 MODELS
ELECTRICAL SYSTEM TESTING

When the battery is low or dead, the electrical system of the motorcycle should be checked. Each section and unit should receive a systematic inspection and its operation be tested before any other part of the system is checked or adjusted. The following analysis is the most rapid and positive way of finding and correcting the trouble.

I. BATTERY AND WIRING TEST

A) Test the battery with a hydrometer. Replace or recharge if below 1225.

B) Inspect battery terminals for corrosion, loose screws or broken or missing wires.

C) Check all wiring for short circuits, broken or loose connections.

II. GENERATOR TEST

Use a fully charged battery during this test and the regulator test.

A) Disconnect the BAT and GEN wires from the regulator.

B) Connect a #168002 ammeter (or any ammeter which shows charge and discharge) to the GEN wire.

C) Ground the "F" terminal (nearest the cam case) at the generator.

D) Touch the BAT wire to the ammeter terminal and notice the movement of the needle. Reverse the wires, if necessary, to make ammeter read discharge.

E) Start the engine and connect the BAT wire to the ammeter. Speed up the engine and check the ammeter reading. If a charge is shown, the generator is O.K. NOTE: This reading will be high and must be taken quickly as the generator may be damaged if run too long under these conditions. The ammeter must be disconnected at once after the engine is stopped, to prevent damage to the meter or wires.

F) Connect GEN and BAT wires to the regulator. If the generator did not show charge, remove the head band and be sure that the armature is rotating. (If not, the generator idler gear is broken or the drive pin is sheared.) Remove the cam case cover and repair. Then repeat test.

If the armature is rotating and there is no output, remove and repair the generator.

III. REGULATOR TEST

A) Disconnect the battery to ground wire at the battery. Leave the regulator to ground side of battery wire in place.

B) Connect an ammeter between the battery and ground wire.

C) Turn the switch to the light position and note the discharge on the ammeter.

D) Start the engine and observe the action of the ammeter. If the needle returns to zero or shows charge, the regulator is O.K.

E) Connect the BAT wire to the regulator. If this test indicates the fault to be in the regulator, inspect it for broken wires or burned coils and check it in accordance with the following instructions:

VOLTAGE CONTROL REGULATOR - PART #1697003

The regulator has three units:

1. Voltage limiter with paper layer shunt coil.
2. Current limiter with single coil of heavy wire.
3. Cutout relay with an external coil of heavy wire and an internal shunt coil of fine wire.

MECHANICAL AND ELECTRICAL SPECIFICATIONS:

VOLTAGE LIMITER

CORE GAP	VOLTAGE SETTING 65° - 85° F.
.005"	~~7.5~~
.007"	7.8

CURRENT LIMITER

CORE GAP	CURRENT SETTING
.013"	9-11A
.015"	

CUTOUT RELAY

CLOSED CORE GAP	OPEN POINT GAP	VOLTAGE TO CLOSE 65° - 85° F.	REVERSE CURRENT WITH 6.5 - 7.0 BATTERY
.010"	.010"	6.0	5 Amps. Max
.015	.015"	6.5	

MECHANICAL ADJUSTMENTS

The Voltage and Current Limiter core gaps are gauged between the core of the coil and the brass rivet in the armature. The armature should be held down against the specified gauge and the contact screw adjusted to just touch the contact on the armature. NOTE: The spring adjuster should be bent down and not touch the armature spring. After the contact screw locknut is secured and the gauge removed, the contacts should just touch. This adjustment is made by bending the back of the frame at the armature hinge.

The cutout relay core gap is to be gauged with the contacts held in the closed position. This adjustment is made by bending the brass contact terminal on the frame assembly. The contact gap adjustment is made by bending the brass armature upper-stop against the armature.

If the contacts must be smoothed, use a clean file and after filing, clean as follows: Dip a narrow strip of hard white paper in carbon tetracloride and slide between the contacts with a light pressure on the contacts.

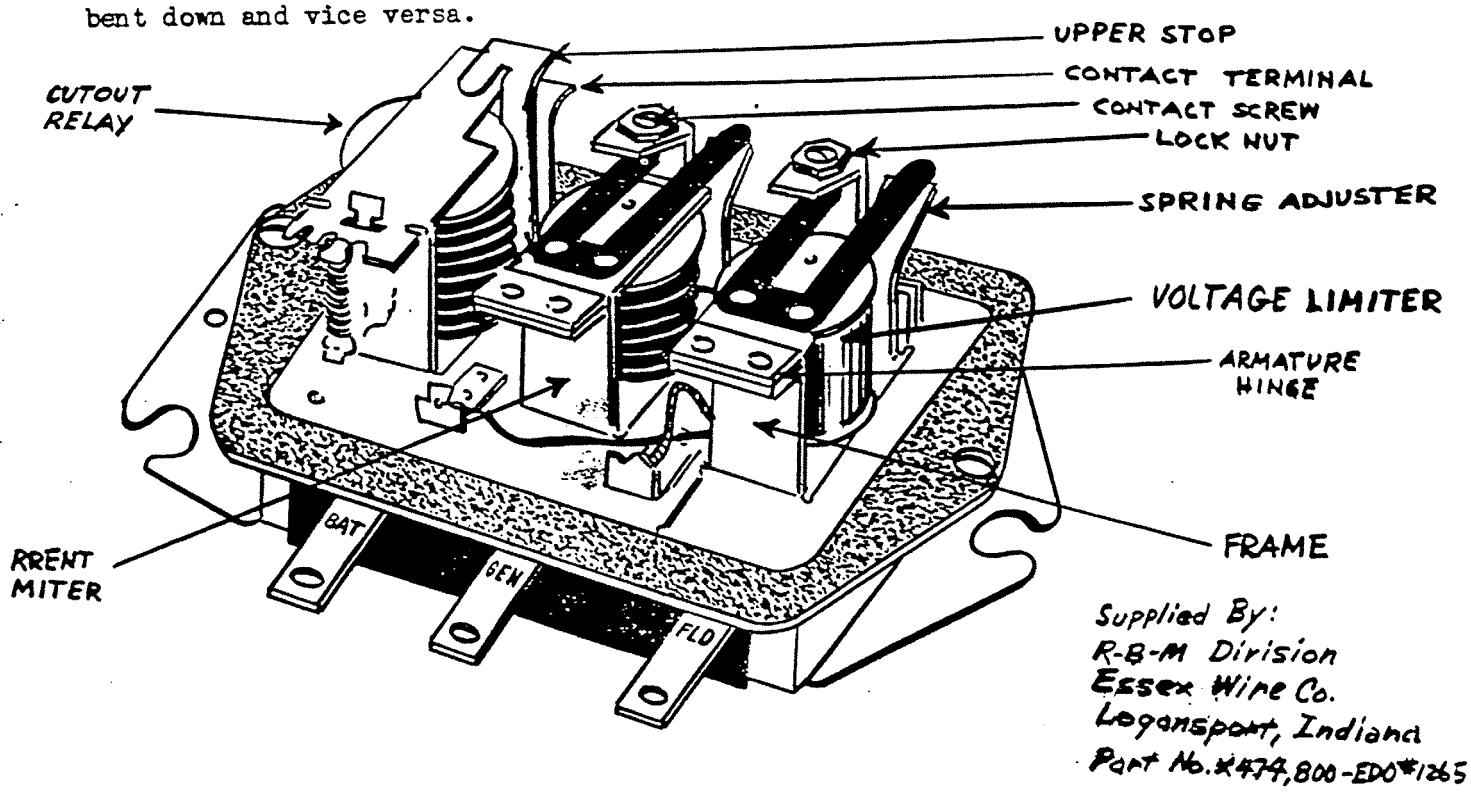
ELECTRICAL ADJUSTMENTS:

IMPORTANT: Regulator must be mounted on a vertical panel, in the same position as it will operate on the motorcycle, for adjustments and checked with cover in place. Idle or stop motor after each adjustment and recheck the settings. The voltage limiter is to be checked with a 5 ampere load and the voltmeter connected at the "BAT" terminal independent from current carrying connections.

METHOD OF ELECTRICAL ADJUSTMENT:

The electrical settings on the Voltage and Current Limiters are made by raising or lowering the spring adjuster arms on the contact side of the unit. Raising the arms raises the setting and vice versa. Do not turn the contact screws after making the above mechanical adjustments.

The cutout electrical adjustment is made by bending the spring adjuster at the back of the frame. To increase the closing value, the spring adjuster must be bent down and vice versa.



If you do not have good test equipment, we urge you to have the work done by an automotive electric service station which specializes in this work.

NOTE: It is recommended that the setup and adjustments be made with Indian G-805-A generator and an Indian 16 ampere hour battery, as used on the 129-249 models. The regulator must be mounted in the same position as it is on the motorcycle.

Walter Brown
Service Manager

172.

Motorcycle

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-16
September 26, 1949

TO ALL: Home Office divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

MODEL 149 - 249

CONNECTING ROD BOLTS AND NUTS

When a connecting rod is reassembled in an engine, the original connecting rod bolts and castellated nuts should be replaced with the new Part No. 1212006 bolts with self-locking nuts..

New connecting rods supplied will be shipped with the self-locking nuts in the box. Discard the castellated nuts which are used to hold the rod and cap together.

Tighten the self-locking nuts to 20 to 25 foot pounds with a torque wrench.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

PARTS BULLETIN 2 - 4
October 5, 1949

TO ALL: Home Office Divisions
Home Office Marketing Dept. Mgrs.
Field Sales Personnel
Dealers

SUBJECT: New Lower Sprocket Prices

New lower manufacturing costs now enable us to offer genuine Indian Sprockets to all Indian dealers at new low competitive prices.

Before announcing these new prices, we have taken time to carefully study prices and samples of sprockets currently offered by all of the "gyp" sources which have come to our attention.

Now, Indian dealers can purchase genuine factory engineered sprockets at the following low prices:

Part No.	Description		New List	New Net
G35221	Countershaft Sprocket	20 T	$3.25	$2.10
G35222	Countershaft Sprocket	22 T	3.25	2.10
16B40	Countershaft Sprocket	21 T	3.25	2.10
20B847	Countershaft Sprocket	19 T	3.25	2.10
21B82	Countershaft Sprocket	17 T	3.25	2.10
25B245	Countershaft Sprocket	18 T	3.25	2.10
38004	Countershaft Sprocket	23 T	3.25	2.10
38038	Countershaft Sprocket	24 T	3.50	2.20
38039	Countershaft Sprocket	25 T	3.50	2.20
39157	Countershaft Sprocket	16 T	3.25	2.10
41907	Countershaft Sprocket	15 T	3.25	2.10
42863	Countershaft Sprocket	14 T	3.25	2.10
16C20	Rear Wheel Sprocket	40 T	4.95	2.95
16C40	Rear Wheel Sprocket	36 T	4.95	2.95
74161	Sprocket - Rear	43 T	4.95	2.95

These new prices are effective immediately and it is requested that you correct your Parts Price List issued November 1, 1948, to show these changes.

Many dealers have informed us of the low priced sprocket competition offered by many unheard of sources. Wherever possible we have obtained samples and checked carefully the sprockets offered by these makers only to find that their tolerances were not close enough for smooth, quiet operation in Indian motorcycles.

We want to emphasize that there is more to a sprocket than the hub and teeth. The tolerance specified for an Indian sprocket is unusually close and requires expensive machinery and careful inspection. Another important point is the metal used for these sprockets. We notice that many of our replacement competitors consider most any grade of gear steel suitable for a sprocket. This is not so with Indian. All steel for Indian sprockets is carefully specified by our own staff metallurgist. This means that warping, heat caused by extreme speed, and other riding factors are resisted to a much higher degree in the Indian sprocket than any competitor's sprocket we have thus far been able to obtain.

Incidentally, we want to point out that only Indian offers the genuine new parts guarantee on every sprocket bearing our mark. These new low prices have no effect whatever on the standard Indian warranty on these parts. Make more profit on every job by installing genuine Indian sprockets and you can know that Indian stands behind the sprocket for ninety days or 4000 miles (whichever occurs first) -- an automatic guarantee of rider satisfaction.

Our decision to offer genuine Indian sprockets at these low prices is based on getting every Indian dealer's sprocket requirements. Your cooperation in buying all of your sprockets from Indian will help us to offer still more competitive prices on many other genuine Indian parts.

Order a good supply of these sprockets through your parts distributor or direct from the factory (if your parts order totals $100.00 or more) today. Use the attached order form for your convenience.

C. H. Remmel, Manager
Parts and Accessory Department

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-18
October 31, 1949

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

SUBJECT: CAM CASE GEARS - 149-249 MODEL

Two types of cam case gears have been assembled in the 149-249 model engines.

Model 149 engines with numbers ADI-1001 to ADI-3485 were assembled with 20° tooth pressure angle gears.

Model 149 engines with numbers ADI-3486 and up were assembled with 14-1/2° tooth pressure angle gears.

There were a few 149 models between ADI-1001 and ADI-3485 that were equipped with the 14-1/2° tooth pressure angle gears but we do not have a record of the engine numbers.

Model 249 engines were assembled with 20° tooth pressure angle gears with the exception of a very few machines. We do not have a record of these engine numbers either.

The two different types of gears can be identified by observing their finish --

1. The 20° tooth pressure angle gears are not plated, so they are natural steel color.

2. The 14-1/2° tooth pressure angle gears are cadmium plated, so they are white or silver colored.

The sketches on the next page show the easiest, most positive method of identifying the two types of gears in case they become discolored and cannot be identified by the finish.

A 1/16" diameter wire or drill can be rocked between the teeth of the cadmium plated gears (14-1/2°) but will be tight between the teeth of the unplated gears (20°).

NOTE: The generator gear and the fiber or replacement steel gear (1462015) are all the same type with the 20° tooth pressure angle.

IMPORTANT

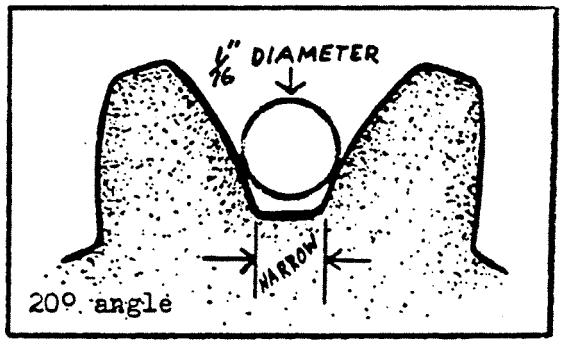
If, for any reason, it becomes necessary to replace any gear in the cam case other than the generator gear and the fiber or replacement steel gear, you must clean the gear or gears thoroughly and observe the finish or check with a wire or drill to determine which of the two types of gears must be used for a replacement.

CAUTION

If two different types of gears are assembled in the same cam case, the result will be a loud whine or grinding noise and eventual damage to the mismatched gears and bearings. Both types of gears are available from your Parts Distributor or our Parts Department, but be sure to order the correct type to match up with the other gears in the original set.

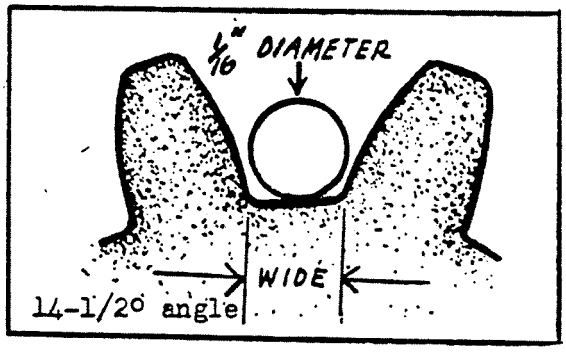
Part numbers for the unplated 20° tooth pressure angle gears, as assembled in the 149 Models ADI-1001 to ADI-3485 and most all 249 models, are:

1471001	Pinion Gear
1471002	Exhaust Cam Shaft Gear
1471003	Intake Cam Shaft Gear
1780006	Breather Gear & Shaft Assembly
1464004	Oil Pump Drive Gear
1471005	Magneto Gear
1462003	Generator Idler Gear (separate)
1462017	Generator Idler Gear Cluster w/#1462015 Steel Gear



Part numbers for the cadmium plated 14-1/2° tooth pressure angle gears, as assembled in 149 models ADI-3486 and up and a few 249 models, are:

1471006	Pinion Gear
1471007	Exhaust Cam Shaft Gear
1471008	Intake Cam Shaft Gear
1780010	Breather Gear & Shaft Assembly
1464005	Oil Pump Drive Gear
1471010	Magneto Gear
1462007	Generator Idler Gear (separate)
1462016	Generator Idler Gear Cluster w/#1462015 Steel Gear



Part numbers for the two gears that have the 20° tooth pressure angle (unplated), and are the same type in all engines assembled, are:

1462015	Generator Idler Gear (steel) replaced fiber gear #1462002
1462001	Generator Gear

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-21
November 14, 1949

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

REPLACEMENT OF CLUTCH SPROCKET AND CLUTCH DRIVER HUB BEARINGS ON 149-249 MODELS

PARTS REQUIRED:

1 -	1189002	Clutch Sprocket Bearing Inner Race
1 -	1189004	Clutch Sprocket Bearing Outer Race
1 -	1927003	Inner Race Washer
1 -	1704001	Clutch Sprocket Ball Bearing Retainer
24 -	185003	Clutch Sprocket Bearing Ball
1 -	1919003	Clutch Hub Flange Lockwasher
1 -	1421001	Clutch Sprocket & Hub Backing Flange (left hand thread)

These parts may be ordered from your distributor or our Parts Department.

INSTRUCTIONS FOR REMOVING AND REPLACING THE CLUTCH HUB INNER BEARING RACE:

1. To remove inner bearing race --

   A) Grind the inner bearing race as far as possible through its thickness, on an ordinary bench grinder.

   B) Strike the inner bearing race with a hammer and blunt chisel to crack it, then force it off the clutch hub with two heavy screw drivers.

2. To replace the inner bearing race --

   A) Place the new inner bearing race on a flat surface under the hydraulic or arbor press with lead edge on the bearing race, up.

   B) Inspect the inner race washer; if damaged, replace with a new one.

   C) Place the inner race washer on the clutch hub smooth side out. Use small dab of soft grease on back side to hold washer in position.

   D) Place the clutch hub squarely over the inner bearing race.

   E) Locate the hydraulic or arbor press ram in the center of the clutch hub and press hub into the inner race bearing against the inner race washer so the washer is held firmly and will not turn. CAUTION: Do not press against ends of clutch spring studs or rest ends of studs on flat surface and press inner bearing on the clutch hub. The brazing at the studs is apt to break loose.

INSTRUCTIONS FOR REMOVING AND REPLACING THE CLUTCH SPROCKET OUTER BEARING RACE:

The original outer bearing race may be removed and a new one installed in one operation with a hydraulic or arbor press.

A) Place the clutch sprocket on a flat surface under the arbor press with the inside up.

B) Place the new outer bearing race squarely over the original outer bearing race, with the lead edge on the new bearing race, facing down.

C) Place a flat piece of steel on the new bearing race and press the original race out and the new race in place with one operation.

INSTRUCTIONS FOR ASSEMBLING THE CLUTCH SPROCKET, CLUTCH HUB AND BEARING ASSEMBLY:

1. Insert ball bearings in bearing retainer. Use small amount of soft grease to hold ball bearings in position.

2. Place retainer with bearings on the clutch hub.

3. Place clutch sprocket on clutch hub and bearing.

4. Drop hub flange lockwasher into center of clutch sprocket with the outer edge lock clip pointing up. Use new lockwasher or be sure the original one is flat at point where it was bent into clutch hub keyway.

5. A) Screw the clutch sprocket and hub backing flange into the clutch hub. The threads in this flange are left hand, so turn it counterclockwise to tighten.

   B) Turn the backing flange down until it just touches the bent-up clip on the hub flange lockwasher.

   C) Line up the clip with the slot in the backing flange.

   D) Turn the flange slowly until you are sure the clip is in the slot and rotating with the flange.

   E) When you are sure the clip is in position and rotating with the flange, tighten it, securing in place with Tool #150115 - Hub Flange and Countershaft Nut Wrench.

      NOTE: Be sure the lockwasher is "centered" so that it does not touch the transmission mainshaft when the complete assembly is placed on the mainshaft taper.

   F) Cut the inner edge of the lockwasher at the hub keyway with a sharp chisel and bend down to complete the locking arrangement, and the clutch sprocket hub and bearing assembly is ready to put on the transmission.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-22
January 16, 1950

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers (2)

GUARANTEE ADJUSTMENTS AND RETURN OF MATERIAL TO THE FACTORY

As we are just starting the 1950 season, this is a good time to call to your attention the matter of handling adjustments.

A red guarantee card is being inserted in the Riders' Instruction Book and placed in the tool box with each new machine shipped. This red guarantee card must be completely filled out and mailed to the Indian Sales Corporation, Hendee Street, Springfield, Massachusetts, immediately after the sale of the machine is completed.

THIS IS OUR RECORD OF THE SALE, AND ALL ADJUSTMENTS ARE CHECKED AGAINST THE RED GUARANTEE CARD. YOUR NEGLECT TO FILE IT WITH US DEPRIVES YOU AND YOUR CUSTOMER OF THE GUARANTEE.

No adjustments will be made unless a "Parts Returned for Factory Adjustment" card (Form M-709) is completely filled out and mailed to us covering each part returned. Failure to do this simply holds up your request for adjustment and no parts will be inspected unless the tags are received completely filled out. Parts must be sent to us within 30 days after they are removed from the machine.

When a number of parts are returned, they must be listed on Form M-710. These forms (M-709 and M-710) may be ordered from us on Advertising Department Order Blanks.

Do not send in any NEW PARTS for credit without first obtaining the written permission from our Parts and Accessory Department Manager. Neither the Service Department nor any other persons can authorized the return of new parts.

If you will follow these instructions, it will help greatly in promptly handling all requests for adjustment.

Walter Brown
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

PARTS BULLETIN 2-18
March 1, 1950

TO ALL: Home Office Divisions
Home Office Marketing Division Dept. Managers
Field Sales Personnel
Dealers

SUBJECT: PART NUMBER CANCELLATIONS

Effective immediately, please insert the following corrections in all catalogs and price lists:

Part #102496 Headlight Door.....CANCELLED.....USE Part #1,196002
Part #76546 Tail Lamp.....CANCELLED.....USE Part #75164
Part #562003 Tail Lamp.....CANCELLED.....USE Part #75164

All orders received for the discontinued parts listed above will be filled with the superseding part as indicated.

SUBJECT: PARTS PRICE CORRECTIONS

The following price corrections are effective immediately:

Part No.	Description	List	Dealer Net
93070	Front Cylinder Assembly	$42.00	$29.40
93071	Rear Cylinder Assembly	42.00	29.40
93072	Front Cylinder Assembly	54.00	32.40
93073	Rear Cylinder Assembly	54.00	32.40

Please correct all catalogs and price lists accordingly.

C. H. Remmel, Manager
Parts and Accessory Department

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-23
March 9, 1950

CHECK WIRE CONNECTIONS TO PREVENT DAMAGE TO VOLTAGE REGULATORS

Wire connections from generator to voltage regulator should be checked on all 1950 Warriors.

1. The wire leading from the LEFT HAND terminal on the generator (the terminal nearest to the cam case side of the engine) must be connected to the terminal on the regulator marked "FLD" (field).

2. The wire leading from the RIGHT HAND terminal on the generator (the terminal nearest to the primary drive case side of the engine) must be connected to the terminal on the regulator marked "GEN" (generator).

Incorrect connection of these wires will damage the voltage regulator when the engine is started.

NOTE: Please refer to the wiring diagram on Page 24 in the Arrow and Scout Riders' Instruction Book for correct wire connections, as described above.

SERVICE DEPARTMENT

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-29
June 9, 1950

TO ALL: Home Office Divisions
Sales Department Heads
Field Personnel
Dealers

RECONDITIONING SERVICE

FLAT RATE CHARGES

The Indian Service Department is prepared to recondition the parts listed at the flat rate labor charges shown, plus the price of parts required. These charges are based on the reconditioning of units which are completely disassembled and thoroughly cleaned. If it is necessary to disassemble or clean the units before they are reconditioned, an additional charge will be made for the actual time required.

Refinish Cylinder - rebore and hone		
45", 74" and 80"	per cylinder	$2.50
Arrow	per cylinder	2.50
Scout and Warrior	per block	5.00
Reface Valve Seats	per seat	.60
Reface Valves	per valve	.30
Install Valve Guides		
45", 74" and 80"	per guide	.30
Arrow, Scout and Warrior	per guide	.60
Install Valve Seat Inserts and Face Seats		
Arrow, Scout and Warrior	per seat	1.00
Recondition Connecting Rods		
45", 74" and 80" - Replace and finish upper and lower bushings, align rods	per pair	3.00
Arrow, Scout and Warrior. Replace and finish upper bushing, guage lower end and align rod	per rod	1.00

Earle Robbins
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 2-30
June 30, 1950

TO ALL: Home Office Divisions
Sales Department Heads
Field Personnel
Dealers

SUBJECT: SERVICE PROCEDURE - MODEL 350 HYDRAULIC FORK

The correct procedure for servicing this new 350 fork is as follows:

REMOVAL OF FORK MEMBER

Remove front wheel and mudguard.

Loosen the lower bracket pinch bolt.

Loosen the upper bracket anchor cap two turns and tap with a soft hammer to loosen the taper end of the upper fork tube from the upper bracket.

Remove the anchor cap and lower the fork member out of the brackets.

DISASSEMBLY OF FORK MEMBER

Support the fork member in a vise by the axle end fitting.

Compress the spring by pushing the upper tube into the lower tube. Remove the plunger rod nut (Tool #150119) from the recess at the top of the fork, then release the tension on the spring.

Remove the oil seal retaining ring from the lower fork tube.

Pull or bump the upper tube to free the oil seals and bushing from the top of the lower tube. Lift the upper tube until clear of the spring and plunger rod.

Lift off the stop tube, washer and spring.

Pour the fluid out of the lower tube.

Remove the plunger seat nut located inside the lower end fitting.

Lift out the plunger assembly, fork rubber cushion ring and plunger seat gasket.

DISASSEMBLY OF PLUNGER

Place two nuts on the plunger seat screw and lock them together securely.

Hold these nuts while loosening the plunger tube nut.

Lift plunger tube off the rod. Remove the nut and seal from the tube.

ASSEMBLY OF PLUNGER

Place the seal and nut over the plunger tube and feed the rod through the tube.

Assemble the seat screw and tube and secure firmly.

ASSEMBLY OF FORK MEMBER

Hold the lower tube in a vise by the axle end fitting.

Place fork cushion ring in position in the lower tube.

Coat the seat gasket with grease to hold it in place on the seat screw while lowering the plunger into the lower tube.

Install the lockwasher and nut and secure firmly.

Pour eight ounces of fork fluid into the lower tube. Use Indian Fork Fluid, No. 1,163001.

Place the spring over the plunger and place the stop washer, then the stop tube over the rod.

Place the plunger rod assembling tool (#150108) in the end of the plunger rod and assemble the upper tube into the lower tube.

Place the bushing over the upper tube and push into position in the lower tube. Install the oil seal with the lip down, the felt seal, the steel washer and retaining ring.

Compress the spring by holding down on the upper tube. Guide the flat sided end of the plunger rod into position through the hole at the upper end. Install the lockwasher and nut and secure firmly.

INSTALLATION OF FORK MEMBER

Raise the fork member into position in the brackets.

Install and tighten the anchor cap.

Tighten the lower bracket pinch bolt.

FILLING THE FORKS ON MOTORCYCLES

Support the motorcycle vertically with the front wheel just touching the floor.

Remove the anchor caps and loosen the plunger rod nuts (Tool #150119). Place the plunger rod tool (#150108) in the plunger rod and remove the nut.

Remove the fork drain screw and allow all of the fluid to drain.

Replace the drain screw and washer and secure firmly.

Pour eight ounces of fork fluid into each member. Use Indian Fork Fluid, No. 1,163001.

Earle Robbins
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

PARTS BULLETIN 2-30
July 14, 1950

TO ALL: Home Office Division Heads
Sales Department Heads
Field Men
Dealers

SUBJECT: CHIEF MODEL 350 PARTS SUPPLEMENT

The Model 350 Parts Supplement attached herewith covers all non-interchangeable parts used on Model 350 Indian Chief.

This list should be used as a supplement to Indian Model 44 through 48 Parts List #675005. It is our suggestion that all Indian dealers place the attached Model 350 Chief Parts Supplement next to the Indian Model 44 through 48 Parts Catalog in their counter catalog so it will be available for convenient reference.

Our printing of the attached Indian Chief Model 350 Parts Supplement is limited, therefore we ask that you carefully file your copy attached for permanent reference.

C. H. Remmel, Manager
Parts and Service Division

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-1
September 1, 1950

TO ALL: Home Office Divisions
Sales Department Heads
Field Sales Personnel
Dealers

SPARK TIMING - MODEL 350

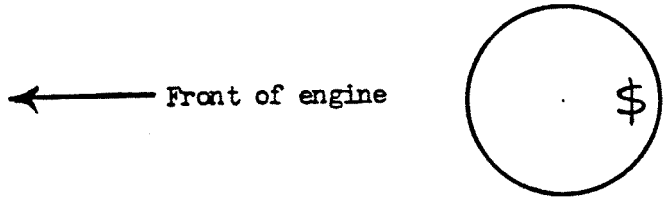
The spark timing on the Model 350 Chief must be set at 11/16" before top center on the front cylinder.

When timing with the front cylinder head removed, bring the piston up to 17/32" below the top surface of the cylinder with both valves closed. This is because the piston projects 5/32" above the top surface of the cylinder at top center.

When timing with the flywheel timing mark, place the "S" on the flywheel so that it is just visible at the rear of the hole. Be sure that both valve tappets on the front cylinder are free, indicating that the valves are closed and the piston is on the compression stroke.

Be sure that the distributor points are set at .018" to .020" and that lever is fully advanced (in toward the engine) before moving the distributor body in the clamp to break the points. The narrow cam lobe breaks the points to fire the front cylinder.

The sketch shows the proper position of the timing mark.



The above information applies to all engines bearing numbers CEJ-1001 to CEJ-1500 and C-2001 to C-2500.

Flywheels, Part No. 424025, which carry the "S" timing marks are treated in the above manner. Flywheels which carry a "A" timing mark must be timed with the point of the inverted "V" at the center of the timing hole.

Earle Robbins
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-2
September 12, 1950

TO ALL: Home Office Divisions
Sales Department Heads
Field Men
Dealers

NEW MACHINE WHEEL, FORK AND FENDER ALIGNMENT

WHEEL ALIGNMENT:

The wheel alignment on all new motorcycles must be checked before being delivered to the customer.

The rear wheel is assembled in approximate alignment in production but the only machines which are carefully inspected are for ready-to-ride delivery.

The suggested alignment is as follows: Place the motorcycle on the center stand. Hold a straight piece of pipe or bar against the side of the front and rear tires as high from the floor as possible. When the bar is in contact with the front and rear edges of both tires, the wheels are in proper alignment. Move the rear wheel with the chain adjusting screws to correct the alignment. Check the chain and rear brake adjustments after the wheel is tightened in the frame.

FORK AND FENDER ALIGNMENT - MODEL 350 CHIEF

Interference between the fork dust shield cover and fork lower tube or fender can be cleared by placing a 3/16" spacer at each bolt between the fender and the bracket on the lower tube. Part #1800001 Stud Spacer is the correct thickness.

This will relieve the tension on the fork tube which is caused by the fender being narrower than the brackets.

Earle Robbins
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-3
October 2, 1950

TO ALL: Home Office Divisions
Home Office Marketing Department Heads
Field Sales Personnel
Dealers

WARRANTY ADJUSTMENTS AND REPAIRS ON BRITISH MOTORCYCLE EQUIPMENT

As all repairs and adjustments on Lucas electrical equipment and Smith speedometers are handled by the American representatives of these firms, in the future please forward to these companies all material of this nature.

Lucas Electrical Equipment to:

Lucas Electrical Service, Inc.
653 - 10th Avenue
New York, N. Y.

Smith Speedometers to:

Nisonger Sales Company
146 East 74th Street
New York, N. Y.

We would recommend that you furnish these companies the following information:

Name and address of owner of motorcycle
Date of purchase
Name and address of dealer
Date dealer received cycle
Engine and chassis numbers
Date defect manifested itself
Mileage

The Nisonger Sales Company states the Smith speedometers MUST NOT HAVE BEEN TAMPERED WITH or the warranty will be voided and a charge will be made for the repairs.

Earle Robbins
Service Manager

INSTRUCTIONS FOR INSTALLING PRIMARY DRIVE CHAIN ADJUSTER KIT, NO. 1540026

1. Remove the primary drive case cover, clutch, chain, motor sprocket, clutch sprocket and primary drive case.

2. Lay the primary drive case face down and locate the position of the two 11/32" holes.

3. Drill the two 11/32" holes and be sure to remove burrs.

4. Locate the hole for the adjusting spring screw. Drill hole with a #25 drill, spot face and tap for 10-24 chain adjuster spring screw.

5. Wash the chips from the case and assemble new parts as shown in drawing.

6. After the chain adjuster parts and primary drive are assembled, check the chain adjuster shoe to make sure the tracks line up with the space between the chain side links.

   NOTE: The length of the chain adjuster screw is 2". Do not use a longer screw because when adjusted up farther than the limit of a standard 2" screw, it will push the chain against the foot spud stud boss on the primary case and wear it through.

7. Assemble primary drive case cover and adjust the chain so there is 3/8" free up-and-down movement when checked through the oil filler cup hole.

8. Fill to oil level with proper grade of oil.

PRIMARY DRIVE CHAIN ADJUSTMENT:

A new primary drive chain should be checked for proper adjustment after 300 miles of operation and each time oil is added thereafter.

Adjust so there is 3/8" free up-and-down movement in the chain when checked through the oil filler cap hole.

PRIMARY DRIVE CHAIN LUBRICATION:

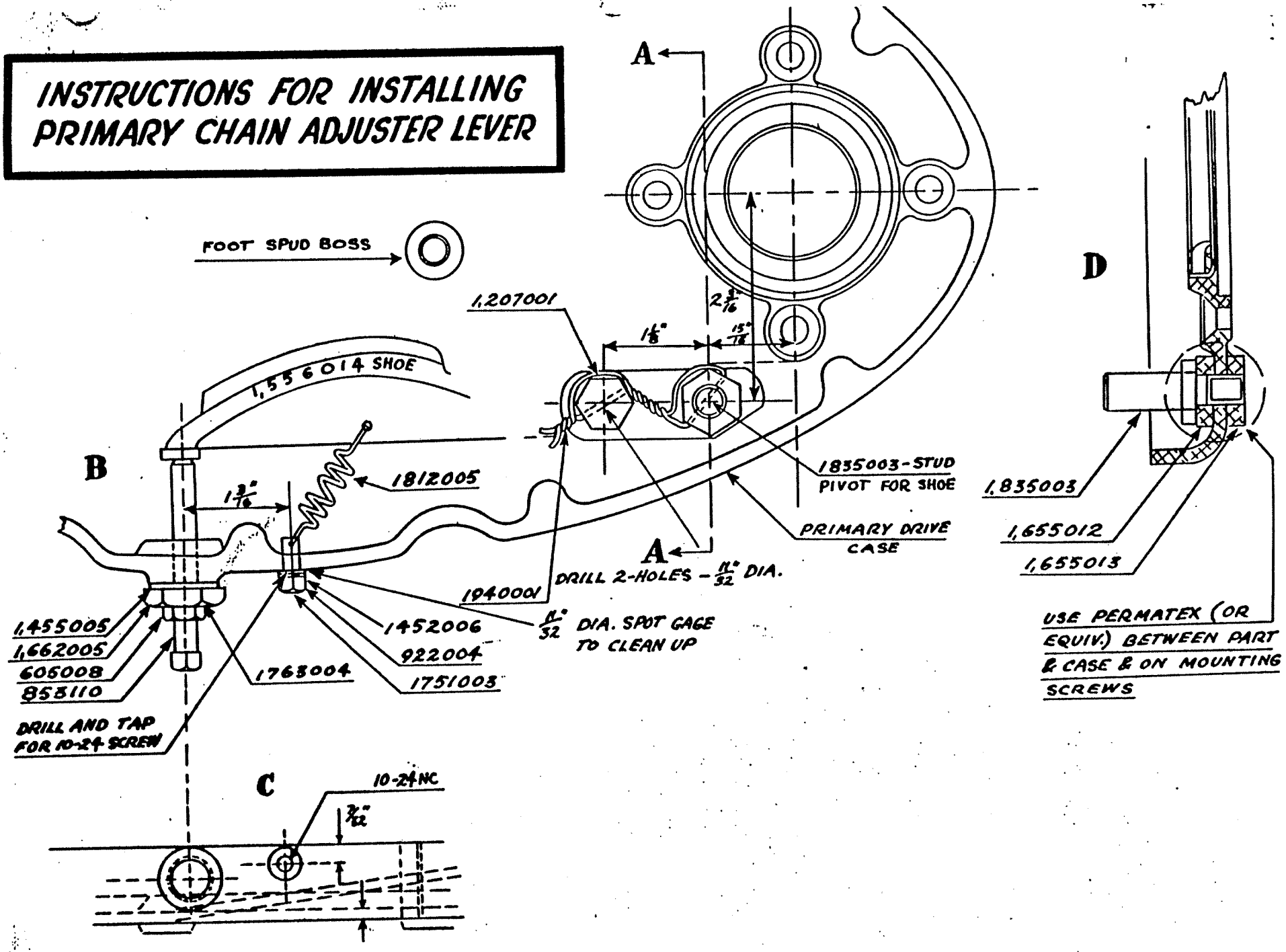
The oil level in the primary drive case should be checked every 500 miles and oil added, if required, and changed after every 2000 miles of operation. Use S.A.E. #10 Indian Oil.

NOTE: Presence of red oxide on the chains indicates lack of lubrication so be sure to keep the oil at the proper level. Requests for adjustment will be refused on chains that, upon inspection, show that they have not received proper lubrication.

INDIAN SALES CORPORATION
Service Department

Oct. 28, 1950

INSTRUCTIONS FOR INSTALLING PRIMARY CHAIN ADJUSTER LEVER



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MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

PARTS BULLETIN 3-7
October 31, 1950

TO ALL: Home Office Divisions
Sales Department Heads
Field Men
Dealers

SUBJECT: MODEL 350 PARTS SUPPLEMENT

Through error the following parts were not listed in the Model 350 Parts Supplement:

PART NO.	DESCRIPTION	NO. USED	LIST PRICE
	GROUP 1		
773002	Drive Shaft	1	5.00
	GROUP 36		
924021	Washer, Drive Shaft Thrust - Outer (.098)	Opt.	.50
924022	Washer, Drive Shaft Thrust - Outer (.101)	Opt.	.50
	GROUP 45C		
647017	Plate, Steering Damper Lower	1	1.25
809028	Spring and Spindle, Steering Damper	1	1.10

Please add the above items to your list.

Earle Robbins, Manager
Parts and Service Division

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-6
April 16, 1951

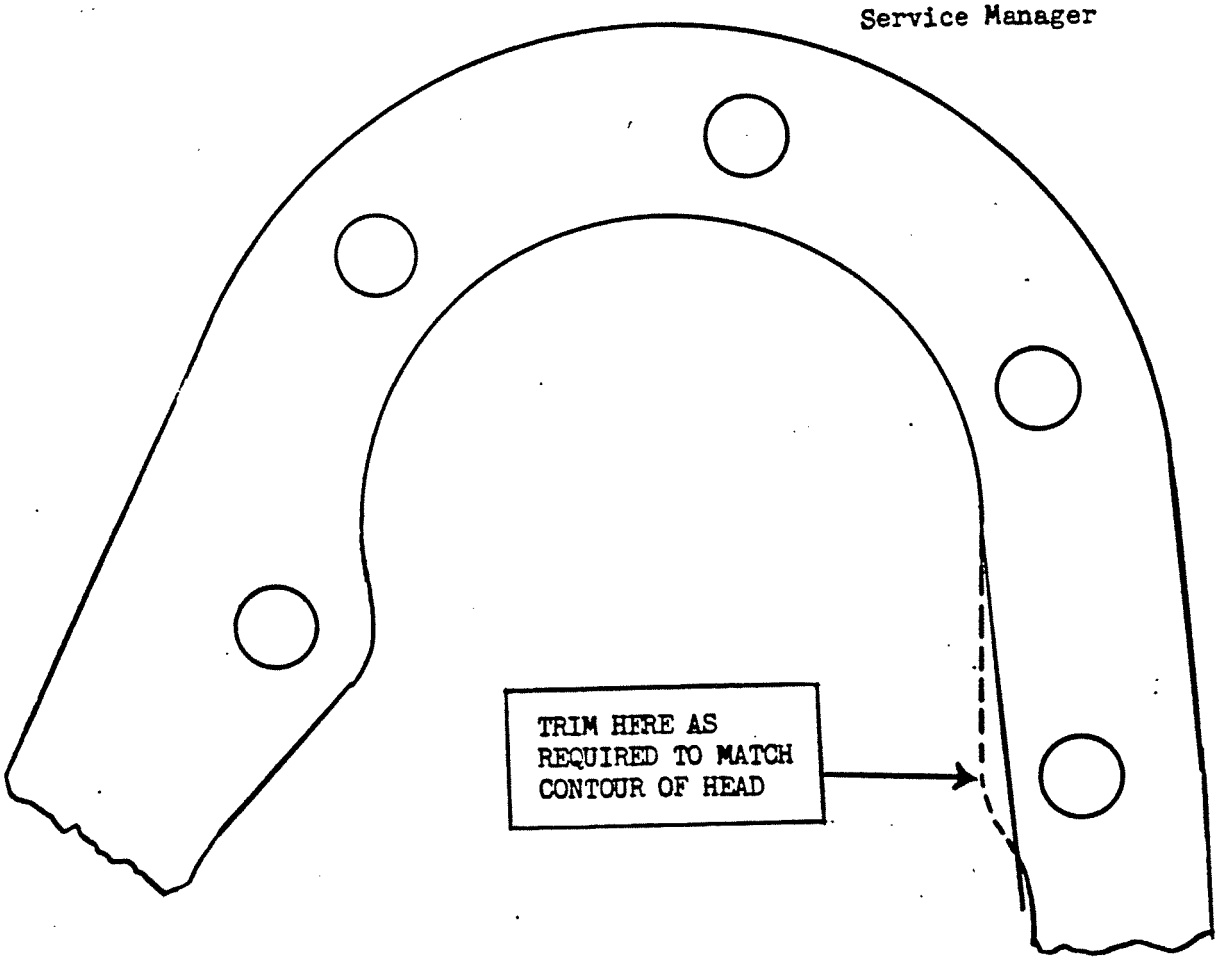
TO ALL: Home Office Divisions
Sales Department Heads
Dealers
Field Men

SUBJECT: CYLINDER HEAD GASKETS, MODEL 350-351

When installing new cylinder head gaskets on the Model 350 and 351 Chief, the gasket should be checked to be sure that the edge does not project beyond the machined section of the head at the corner near the center bolt.

The gasket should be trimmed as shown in the sketch so that it follows the contour of the recess in the cylinder head. The gasket projecting beyond the edge of the head into the combustion chamber may cause detonation or pre-ignition.

Stuart E. Watson
Service Manager



MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-7
April 16, 1951

TO ALL: Home Office Divisions
Sales Department Heads
Dealers
Field Men

SUBJECT: INDIAN BRAVE LUBRICATION

RECOMMENDED GRADES OF INDIAN OIL

ENGINE

Below 0° F	S.A.E. No. 10-W
Between 0° and 32° F	S.A.E. No. 20-W
Between 32° and 60° F	S.A.E. No. 30
Above 60° F	S.A.E. No. 50

PRIMARY DRIVE AND CLUTCH

All temperatures	S.A.E. No. 10-W

TRANSMISSION

Below 32° F	S.A.E. No. 30
Above 32° F	S.A.E. No. 50

During the running in period, all oil should be changed after 500 miles and after 1000 miles.

After this, the engine oil should be changed at every 1500 miles. The oil screen should be thoroughly cleaned at each oil change.

The primary drive and clutch and transmission oil levels should be checked every 500 miles and filled to the proper level if necessary. These cases should be drained and filled with fresh oil every 3000 miles.

Stuart E. Watson
Service Manager

MARKETING DIVISION
INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 3-8
June 18, 1951

TO ALL: Home Office Divisions
Sales Department Heads
Dealers
Field Men

NORTON

The following information has been supplied by Norton Motors, Ltd.

HEADLAMP

A few instances of lighting failures have occurred due to insufficient grounding of the headlamp brackets to the rest of the machine. The rubber washer at the upper end of the fork top cover which carries the headlamp bracket prevents the proper grounding of the cover against the fork upper bracket, and the enamel between the upper and lower covers also acts as insulation at this joint. To insure proper grounding of the headlamp, a wire should be run from the headlamp mounting screw to one of the speedometer mounting nuts. Future machines will be equipped in this manner.

FRONT FORK

For some time, we have recommended the use of only 1/4 pint of SAE 20 oil in each leg of the "Roadholder" fork instead of the original 1/2 pint specified. This reduction in oil will assist greatly in reducing fork leaks without in any way affecting the action of the fork.

MAGNETO CHAIN - TWIN ENGINE

The three studs which hold the magneto to the crankcase are reduced in diameter at the magneto flange and allow movement of the magneto when the nuts are loosened. To adjust the magneto chain, remove the right hand foot rest and push the foot rest rod through towards the opposite side of the machine until the end is flush with the engine mounting plate. Remove the oil pipe junction block from the crankcase and plug the hole to prevent loss of oil. The nuts may now be loosened and the magneto moved to adjust the chain until there is 3/16 of an inch up and down motion. NOTE: Do not tighten the chain beyond this point, as there will be a tendency to make the automatic ignition advance mechanism bind and interfere with the timing.

UNEVEN RUNNING - TWIN ENGINE

It is sometimes difficult to obtain absolutely even running on a vertical twin engine, especially when both cylinders are supplied from a single carburetor. When all other attempts to smooth up the engine have failed, it is possible that reversing the intake manifold may be found helpful. There may be a certain amount of induction bias on one port which can be increased or nullified by the manifold. When installing the carburetor or intake manifold, the gaskets must be placed on the studs and checked carefully to be sure that they do not overlap the manifold or cylinder head bores.

Stuart E. Watson
Service Manager

INDIAN SALES CORPORATION
Springfield, Massachusetts

SERVICE BULLETIN 4-1
November 2, 1951

FLYWHEEL ASSEMBLY SERVICES
Model 249-250-251

Exchange Service

We are prepared to make shipment of exchange flywheel assemblies for all vertical twin models upon the receipt of your assemblies.

The exchange assemblies will carry a new standard size crankshaft and include a pair of standard connecting rod bearings.

The exchange assembly will be furnished at a net price of $20.00 plus tax.

NOTE: If special flywheels which require non-standard balance are returned for installation of a new crankshaft, an additional charge will be made for the balancing.

Regrinding Service

Regrinding service will still be available if desired. Shafts will be reground to .010 or .020 inches undersize as required, and bearings of the correct undersize will be furnished.

Regrinding service will be $12.00 net plus the bearings, subject to regular discount and tax.

Unless otherwise specified we will ship exchange flywheel assemblies on all shafts which are sent in for regrinding and are found to be beyond repair, due to being worn so that they will not clean up at .020 inches undersize.

NOTE: We do not consider it advisable to regrind the shafts below this size, due to the hardness depth of the surface of the journal.

Stuart Watson
Service Manager

INDIAN SALES CORPORATION
Springfield, Massachusetts

SERVICE BULLETIN 4-3
December 4, 1951

NEW TRANSMISSION LUBRICATION RECOMMENDATIONS
FOR INDIAN BRAVE

It has been found that a change to S.A.E. No. 140 Gear Oil as lubricant for the BRAVE transmission will increase gear life and eliminate leakage at the starter shaft. We recommend that you use S.A.E. No. 140 gear oil as follows:

Lubricating the transmission:

(1) Drain the transmission case completely when the engine is warm. Replace the drain plug.

(2) Fill the transmission with seven ounces of S.A.E. No. 140 gear oil. This amount of gear oil will provide the proper level, which should be maintained at all times.

(3) To check the oil level, remove the filler plug. Place the bottom of the threaded section on the top of the case. There should be 1/8" of oil on the dip stick with the machine held vertically.

(4) Drain completely and refill every 1500 to 2000 miles.

This bulletin supersedes Service Bulletin 3-7, dated April 16, 1951.

Stuart Watson
Service Manager

INDIAN SALES CORPORATION
Springfield, Massachusetts

SERVICE BULLETIN 4-4
December 4, 1951

(A) BRAVE ENGINE LUBRICATION CHANGES

Crankcase and Primary Drive

The transfer of engine oil to the primary drive case, and the resultant build up of oil which causes loss of oil at the mainshaft oil seal, can be corrected by drilling the BES4356 Timing Gear as shown in Sketch No. 1.

The cover should be removed before drilling unless special care is used to prevent chips entering the crankcase. When removing the cover, the engine should be tipped to the right to prevent the OS/10700 Mainshaft Rollers falling into the crankcase. This is important!

When assembling the cover, use oil or a very light coat of soft grease to hold the rollers in place on the shaft.

Lubrication of the Engine and Primary Drive when timing cover has been drilled.

When the timing cover has been drilled, both the engine and primary drive are lubricated by the crankcase oil, and no oil should be put into the primary case. The operator should receive instructions in regard to this change so he will not add oil to the primary, thus flooding the crankcase.

During operation, the crankcase oil lubricates the primary drive and the oil level is maintained automatically at the required height.

Filling the crankcase after timing case has been drilled.

Before starting the engine, the crankcase should be filled to the proper level with the recommended S.A.E. number of Indian Oil according to temperature.

Below 0° F	S.A.E. No. 10-W
Between 0° and 32° F	S.A.E. No. 20-W
Between 32° and 60° F	S.A.E. No. 30
Above 60° F	S.A.E. No. 50

The oil should be checked daily or at each filling of the gas tank.

Oil changing

The crankcase and primary drive case should be drained every 1000 to 1500 miles. This should be done while the engine is warm.

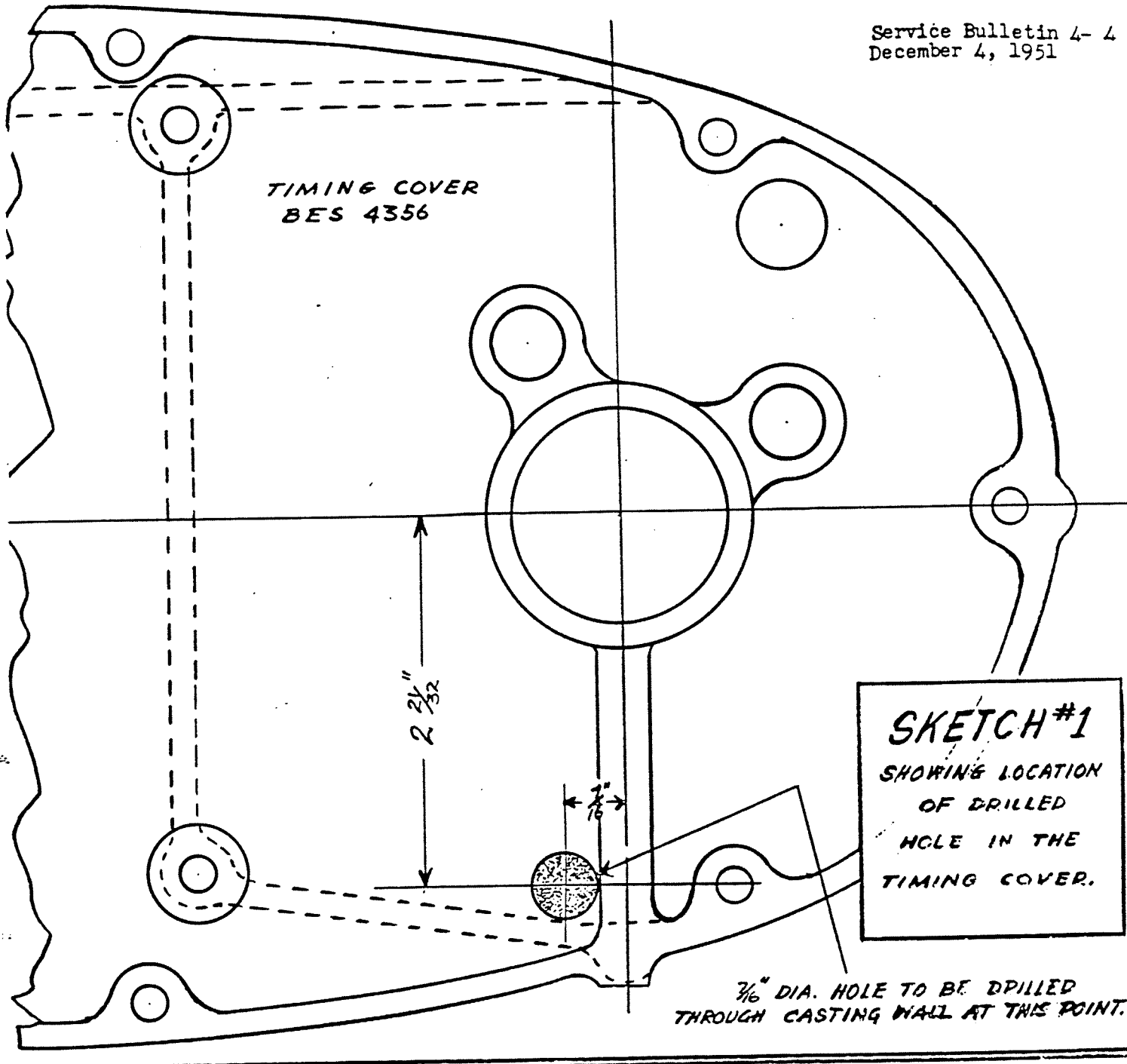
The oil screen on the crankcase drain plug should be cleaned each time the crankcase oil is drained.

(B) GENERATOR COVER CHANGE

To prevent oil building up in the BES4360 Generator Cover, a drain hole should be drilled in the bottom as shown in Sketch No. 2.

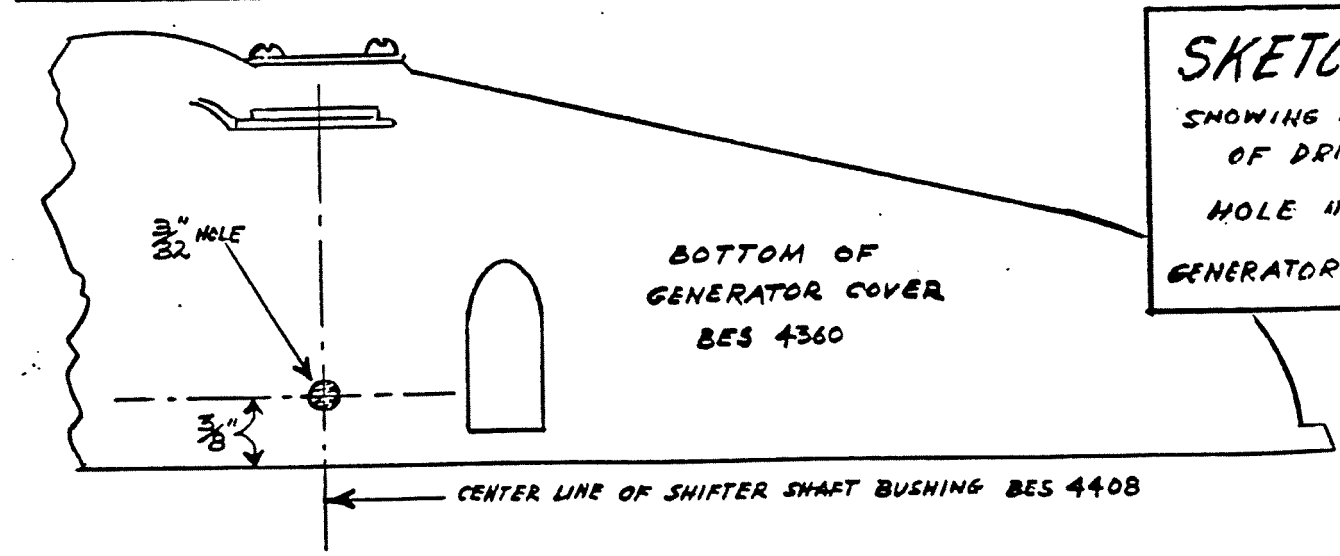
This hole will allow any oil which enters the case to be drained out immediately.

Stuart Watson, Service Manager



SKETCH #1
SHOWING LOCATION OF DRILLED HOLE IN THE TIMING COVER.

7/16" DIA. HOLE TO BE DRILLED THROUGH CASTING WALL AT THIS POINT.



SKETCH #2
SHOWING LOCATION OF DRILLED HOLE IN THE GENERATOR COVER.

INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 4-9
June 6, 1952

LUCAS BATTERIES

First Charge Instructions for Dry and Uncharged Batteries:

These batteries are hermetically sealed at the Works, and the seals closing the vent holes of the cells must not be broken until the battery is to be filled with electrolyte and charged.

1) After breaking the seals, fill each cell to the top of the separators with electrolyte of the specific gravity shown:

100° F.	Specific gravity 1.225
80°	Specific gravity 1.260
60°	Specific gravity 1.270

2) Allow the battery to stand 6 to 12 hours.

3) Add more electrolyte, if necessary, to bring the level to the top of the separators.

4) Charge at 1/3 ampere continually until the voltage and specific gravity remain constant for five successive hourly readings. This will take approximately 40 to 80 hours.

5) It is recommended that, after the initial charge, the electrolyte should be discarded and replaced by fresh electrolyte, having a specific gravity of 1.285 at 80° F. or 1.295 at 60° F.

6) Recharge rate 1/2 ampere. Keep liquid level with top of separators by adding distilled water only.

7) The performance of the Lucas battery, when new, depends upon the above procedure being followed closely, as the battery, owing to being hermetically sealed, cannot accumulate dirt or corrosion.

T. I. Mosley
Service Manager

INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 4-10
June 6, 1952

LUCAS ELECTRICAL SERVICES

1) All Lucas Electrical equipment found defective must be sent for repair and adjustment to:

Lucas Electrical Service, Inc.
653 Tenth Avenue
New York, New York

2) The following information should be forwarded to Lucas:

Name and address of owner of motorcycle
Date of purchase
Name and address of dealer
Date dealer received cycle
Engine and chassis numbers
Date defect manifested itself
Mileage

3) New Lucas parts can be bought at the Indian factory.

4) If the above procedure is strictly adhered to, serious delays in the return of the parts will be avoided.

T. I. Mosley
Service Manager

INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 5-1
September 9, 1952

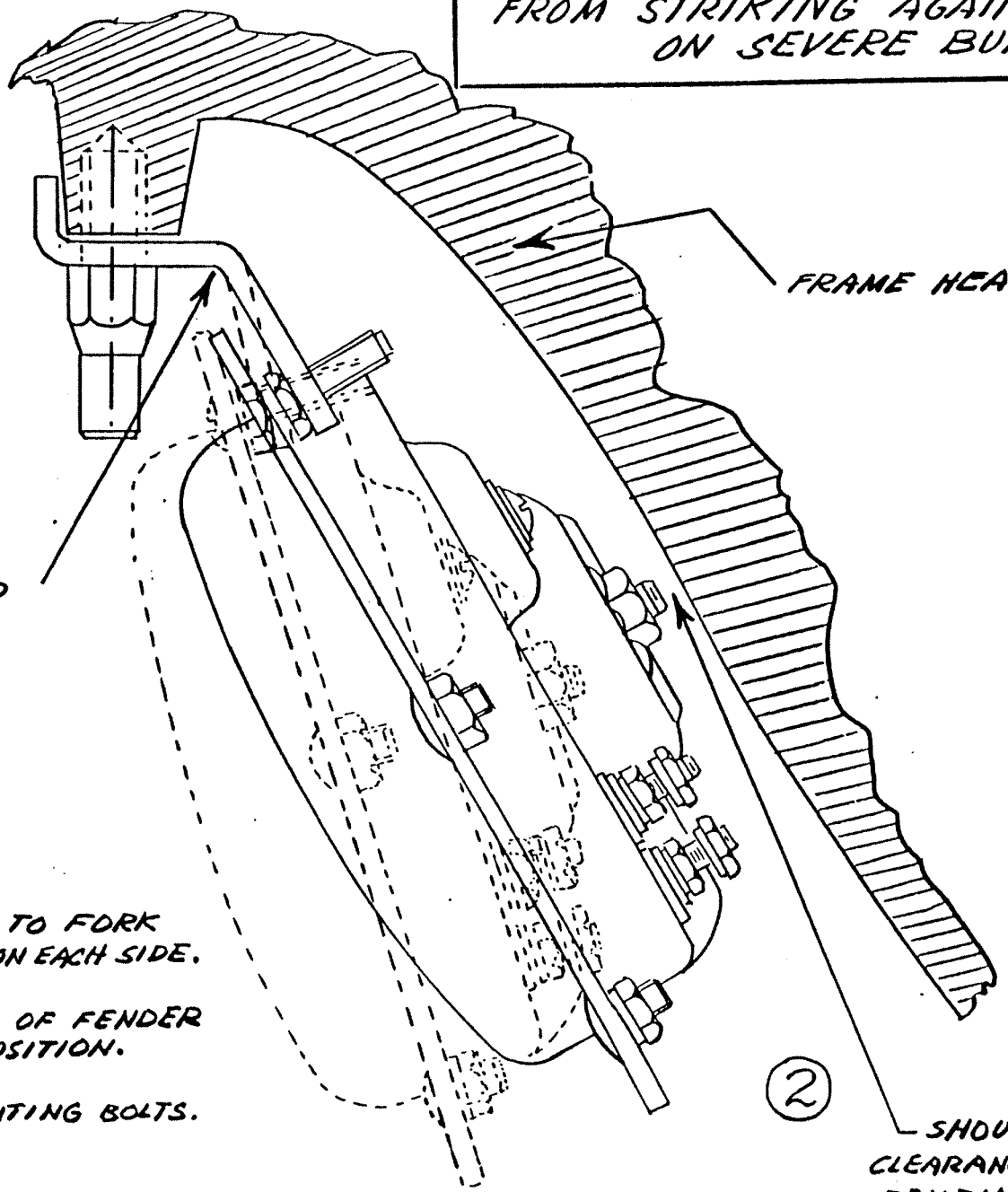
1952 - 1953 CHIEFS

HORN POSITION

The horn bracket on the above machines was designed to allow the horn to fit neatly into the front frame member, and on no account should this be altered. Pulling the horn forward will result in denting the front fender while at the maximum depression of the front fork. See attached drawing for correct position.

T. I. Mosley

TO PREVENT FRONT FENDER FROM STRIKING AGAINST HORN ON SEVERE BUMPS



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(A) LOOSEN 3 FENDER TO FORK MOUNTING BOLTS ON EACH SIDE.

(B) HOLD FRONT END OF FENDER TO UPPERMOST POSITION.

(C) RE-TIGHTEN MOUNTING BOLTS.

INDIAN SALES CORPORATION
SPRINGFIELD, MASSACHUSETTS

SERVICE BULLETIN 5-2
OCTOBER 3, 1952

LUCAS MOTORCYCLE BATTERIES
TYPE LJP72

INSTRUCTIONS FOR CHARGING AND MAINTENANCE - JELLY-ACID TYPE

All Lucas jelly-acid batteries are shipped from the plant dry and uncharged. In this condition no deterioration takes place between the time of manufacture and the time the battery is prepared for service. In instances where batteries reach the customer in a dry, uncharged condition, the following instructions should be carried out to prepare the battery for service.

The battery is filled to the tops of the separators with cool sulphuric acid of specific gravity 1.270 and allowed to stand for 6 to 12 hours.

The battery is then charged at 0.8 ampere until voltage and specific gravity show no increase over five successive hourly readings. The actual charging time will be from 40 to 80 hours, depending on how long the battery has been stored since its manufacture.

The battery is then discharged at 1.0 ampere for 10 hours, after which the acid is tipped out and the battery allowed to drain for a few minutes.

Meanwhile, liquids are prepared for making the jelly. These liquids are:

(1) Sulphuric acid of specific gravity 1.275.

(2) Pure sodium silicate solution of specific gravity 1.200.

Four parts of liquid (1) are mixed with one part of liquid (2). The mixture is vigorously stirred and immediately poured into the battery, filling each cell to the bottom of the vent hole. As this mixture quickly becomes jelly, only sufficient quantity for the batteries immediately at hand should be prepared at a time (each battery requiring one-half pint), and all cells should be filled within three (3) minutes of mixing the solution.

The battery is allowed to stand for 6 to 12 hours and is then recharged at 1.5 amperes for 12 hours. After standing, and again after recharging, any surplus liquid above the jelly should be drawn off.

The battery is then ready for use.

Once each month about a tablespoonful of distilled water should be added to each cell and the battery allowed to stand for (2) hours. At the end of this time any surplus liquid on the top of the jelly should be drawn off.

T. I. Mosley
Service Manager

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