

# Norton Notice

THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH

NO. 103

NOV., 1986



Robin Tulio sits astride his home-baked 750.  
Note the relaxed attitude of the satisfied Norton rider.



# THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH



## Norton Notice

is published by the Northern California Branch of the Norton Owners Club. Its purpose is to inform and entertain members regarding all aspects of the Norton motorcycle, including history, technical advice, and preservation of the marque.

NORTON NOTICE is a reflection of its readership, who are encouraged to submit any article, technical tip, photograph (original or otherwise) as long as it is in good taste, so that other Norton enthusiasts may enjoy it. For Branch members who cannot attend club meetings or club rides, the NORTON NOTICE affords an opportunity to share experiences and information with the membership of the Branch, and to bring the Branch members closer together.

The deadline for items to be submitted for publication is the 15th of each month.

Membership in the Northern California Branch of the Norton Owners Club is available for \$25.00 per year.

Membership dues are payable to the Branch Secretary/Treasurer.

Renewal dues are payable at the end of the individual's membership year, that month being designated by the last number of the individual's membership number as located on the mailing label of the NORTON NOTICE or the membership card. For example, 745/2 denotes member 745 with dues expiring on the 1st of February.

All changes of address should go to the Branch Secretary/Treasurer, not the NOTICE Editor.

Subscription to the NORTON NOTICE only is available for \$15.00 per year. This does not include membership in the Northern California Branch of the Norton Owners Club, nor does it afford any of the rights or privileges of membership in the NOC.

Membership in the Northern California Branch of the Norton Owners Club entitles a member to monthly issues of the NORTON NOTICE and bi-monthly issues of ROADHOLDER magazine, which is sent directly from England, keeping members informed of Norton owners' activities worldwide. Membership provides voting privileges at all NOC and Branch meetings, and allows one to purchase Norton spares directly from England, at significant savings, through the NOC Spares Program.



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needed

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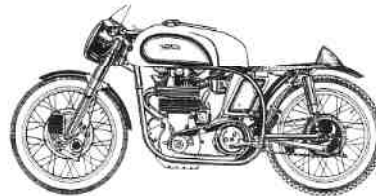
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San Jose, CA 95136  
(408)267-8049



### Important!

(Please take note of the following fine print.)

The object of the Northern California Branch of the Norton Owners Club is to promote, encourage and develop all motorcycling activities. The Club's members are owners of Norton motorcycles, and they often submit for publication in the Norton Notice technical tips pertaining to motorcycles of the Norton marque. Technical tips so published have been reviewed for technical content and are believed to be both acceptable and workable, but no guarantee is made or implied that they will work correctly, nor is any liability assumed by either the Norton Owners Club or the authors for any problems resulting from use of these technical tips. The Club also assumes no responsibility for the acts or omissions of its members in connection with Club activities. Norton Notice articles or other material express the authors' views only and not necessarily the official policy of the Norton Owners Club or its Northern California Branch. The editor reserves the right to accept, reject or alter all editorial and advertising material submitted for publication. Advertising published does not imply endorsement of products, goods or services. Now you know.



1963 catalog drawing of Manx 30M and 40M



## UPCOMING EVENTS

**NOTICE:** IN THE EVENT OF RAIN ON THE DAY OF A CLUB RIDE, THE RIDE IS AUTOMATICALLY POSTPONED ONE WEEK. ALSO, RIDERS SHOULD HAVE PLENTY OF OIL AND GASOLINE BY THE SCHEDULED DEPARTURE TIME AND ALL PERSONAL PROBLEMS TAKEN OF. IN OTHER WORDS . . . PULL TANKS AND EMPTY BLADDERS!



Nov. 13 Thursday Branch meeting at the Class Reunion, 2700 El Camino Real, Palo Alto, 7:30 P.M.

Nov. 23 Sunday Branch ride. Mt. Hamilton Freeze Ride. Meet at Howard Johnsons, intersection of Hwy 17 and Hwy 101. This ride goes rain or shine; no rain date. A good time to try out that new electric vest. 10:00 A.M. start time.

Dec. 7 Sunday European and British Bike Swap Meet and Show. San Mateo County Fairgrounds Bldg. Adm. \$3.00. This is the one that was scheduled for Berkeley before insurance problems got in the way. Should be good.

Dec. 14 Sunday Branch ride. Pearl Harbor Day Ride (one week late). Meet at Alices, Skylonda, at 10:00 A.M. Ride to CB Hanagans, get bombed. Don't even think of bringing your Nippon weapons.

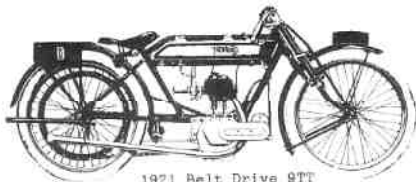
Dec. 19 Friday Annual Norton Christmas Party at the Class Reunion, Palo Alto, 7:00 P.M. Come and enjoy the good cheer.

### NOVEMBER

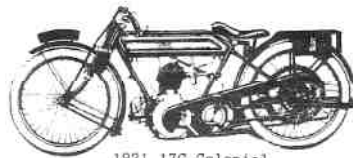
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### DECEMBER

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1921 Belt Drive 9TT



1921 17C Colonial

# The Norton experience



## THE MODERN MANX

**JOE CRAIG, the great tuner, strategist and manager of the works Norton road racing team in the 50's, must be turning in his grave.**

Almost 30 years after the factory Manx Nortons last raced in anger a British company is to make engines intended to replace the fabled Bracebridge Street singles.

Motor cycling's equivalent of blasphemy? Some upstart trying to improve on perfection? Not so, for the company in question are Weslake, more than a little experienced in the manufacture of high-performance racing engines.

And this is no plan to offer replicas of the bevel-drive dohc Manx. Ron Jones, whose Midlands company G R Jones Engineering deals in gear-cutting machinery, thinks there is great potential for an up-to-date single-cylinder racing engine.

And he reckons the most obvious way to enhance that potential is to make the engine interchangeable with a Manx Norton.

After all, though it would be ineligible for classic racing, there must be hundreds of Manx owners who would be happy to use their expensive bikes — a Manx in good nick fetches upwards of £6000 these days — happy in the knowledge that the engine is safe at home.

More than enough racers who see heaven down the bore of a big single have shown interest enough to make the venture worthwhile — particularly in America where a deal to import them has already been tied up with former racer and expatriate Brit Cliff Carr.

The idea came to Ron Jones and designer Ron Valentine, who laid out the successful Weslake speedway engine in the 70s, after the first of the new 1000cc Weslake V-twins had been completed.

What could be simpler than to use the top end — barrel, head and valve gear — mounted on new crankcase?

But not any old crankcase. To provide the interchangeability with a Manx, the cases, cast in aluminium rather than very light but expensive magnesium alloy, are virtually identical in appearance to a Manx. The same mounting bolts, the same deep finning, the same stiffening ribs for strength.

But from that point on the new Weslake — marked REV after Ron Valentine's design company REV Ltd — is right up to the minute. With an objective of at least 55bhp it couldn't be anything else.

Bore and stroke of the 500 are almost the same as the later Manx engines at 90 x 77.8mm giving 495cc and enough room for a 15 thou rebore on the steel liner. But that's as far as any similarities with a Manx go.

The crankshaft is a one-piece EN40B steel forging unlike the Manx's built up with a roller big end.

But because it would be impossible to forge a crank with large flywheels, Weslake's is small and stubby, the flywheels being fastened with three circumferential bolts to give a 7.75in diameter compared to the Manx eight inches. Balance factor is 62.5 per cent.

Main bearings are rollers with 62mm outside diam-

eter, 35mm inside diameter and 14mm wide, the drive side also having an additional ball bearing for location.

The plain big end — 1.94in diameter and the same as a Cosworth-Ford FI V8's — offers higher revs to 9500 than the roller unit ever could with reliability. And it's simply lubricated from a Norton type gear pump in the new-style timing cover running at 6/14ths of engine speed.

The pump supplies a peak 4.6 pints/minute through a long, small diameter paper filter in the timing cover to the big end that has a 2.6 pint/min requirement. The scavenge side of the pipe draws through a gauze filter in the rear base of the crankcase.

The forged steel connecting rod with split big end is the same as on the speedway singles with a 6.375in centre distance. This is the optimum length — four times the crank throw — for stiffness with not too much angular variation in the big-end's rotational speed during each stroke.

This is shorter than the V-twin's 6.75in rod which was used to place the cylinders conveniently with a 50-degree angle between the pots.

The complete forging is

used on the shale rod, but for the split rod half of a big end is machined off and a new cap bolted on.

Piston is a forged unit from Cosworth with two thin compression rings and an oil ring. Compression ratio is the same as the last of the Manx engines, 11 to 1, but 12 to 1 will probably be possible.

This is because of the four-valve combustion chamber design. While practically every successful factory has adopted the layout with paired inlet and exhaust valves set at a narrow included angle, Weslake were the first to adopt it back in the early 60's and take advantage of better flow through the steeply downdraught inlet port, smoother combustion from the centrally mounted spark plug and lower thermal stresses.

For reliability, the double overhead camshafts run in needle roller bearings and open the valve through bucket followers with internal clearance adjustment shims.

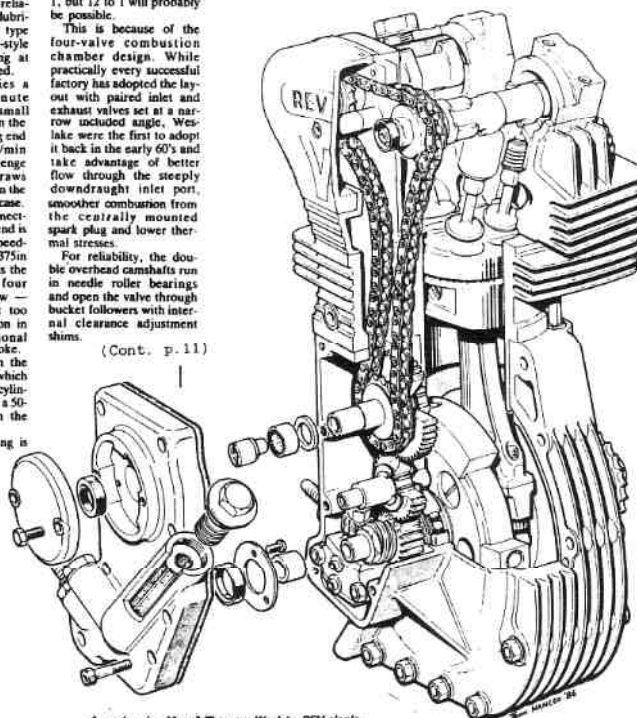
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### Weslake are following the classic lines

# SINGLE MINDED

CYCLE NEWS, July 16 1986

by JOHN NUTTING



A modern day Manx? The new Weslake REV single.



# EDITOR'S NOTES



Hi folks,

I've got a bunch of miscellaneous ramblings this month; not the usual highly polished editorial you've come to expect (choke). First on the agenda is the surprisingly busy fall schedule of events which should entice even the most reclusive of Norton owners out into the open. Not only do we have some fine rides scheduled, but we've got a show and Christmas party as icing on the cake. The Dick Mann event in Brentwood was just a warmup. So polish that beanie up, strap on your hat, and join us for some of the fun.

One word of caution, however. A recent club ride down south resulted in some spills. The NORTON RAG, in its latest issue, advises riders to "Ride/drive at your own speed. Do not try to keep up with a faster rider/driver. Let's keep it safe!" Good advice, especially if you don't ride often enough to remember all the quirks of your machine. Those of us with a variety of shift patterns need especially to be aware of the wider margin of safety we probably need. So far our safety record for recent rides has been great-- let's keep it that way. You may remember talk of the October ride to Nevada City. Well, at least one of us went. Me! The ride was cancelled because of the probability of cold weather but the weekend of the 4th couldn't have been nicer. And I may have found the perfect solution for those of you with families. Let them take the car! Not only do you rid yourself of camping gear, you also have the peace and quiet that solo touring provides. Of course this requires a tolerant and willing spouse, but if you're a Norton owner that aspect of the problem has most likely already been clarified. The disease Nortonitis has been regarded for years as incurable and only the most insensitive of wives would dare meddle with its manifestations.

So you load up the car, establish the first checkpoint, and ride off into the day with a wide grin.

Of course there IS the ultimate-- doing it all by yourself for weeks at a time. Louis M., how about telling us about your 8,000 mile trip? And those of you who did go on the club ride that day-- anyone care to comment?

The Christmas Party. It certainly doesn't seem like a year since the last one (come to think of it it's only mid October as I write this), but it's time to be thinking about our end-of-the-year event once again. This meeting has two important functions. First, of course, is the chance to see some people you may not have seen in awhile, but second, and as important, it's a time for renewing the officers. This year we have practically a full slate to elect. I have agreed to stay on the NOTICE for another year, but Scot, Art, Dave, Nick, and Tim would like a breather. In a sense this is a good thing for the club-- we have a chance to see more people become involved in the workings of the branch and with the change an opportunity for new ideas. That change brings with it fresh energies and diminishes the possibility that any one individual feels that he is "doing it all". Former officers will certainly be available for advice and if

everyone does a little no one has to do a lot. I feel that there are enough responsible people in the branch to make this happen. So consider your benefits from the club and ask whether you're willing to help the organization continue to provide those benefits.

The elections will be held during the Christmas party. Prospective officers might prepare a short self-introduction for those present who don't know them well. This is also a good time to generate ideas for the club. It just could be that your proposal for the club to plant a Norton atop the Transamerica Pyramid could be the suggestion which swings the vote your way. Then again . . .

And speaking of club officers, the success of the Annual Rally was really due principally to the efforts of Dave Crader. I mentioned in the last issue that he had started us all off with a tasty breakfast but I really should have added that he brought the Saturday night meal, the Norton signs, and provided the towing service from Leggett. He handled the advance signups, kept the raffle winners' list, and in general ran the show. We all owe him some thanks.

The one thing Dave didn't do was attract the Oregon riders. While I later heard that there was snow in Oregon, I was hoping to meet some of the club members from the Great Northwest. Where were you guys? Ah, well, I ate a steak in your memory.

There are two new books (magazines, really; Scramble Car Magazine published in Japan) on the market which contain some dazzling photos of Nortons and other assorted machines. Clubman Racer- Classic Racing Motorcycles and Modern Singles, and Clubman Racer, Part Two are available from Hosking at \$15.95 and \$14.95 respectively. The former is the better of the two with slightly more stationary shots of the bikes but the photography is first-rate in both volumes. It helps to be able to read Japanese. Of course with all the club rides scheduled you don't have to spend your time looking at photos; join the rides and look at real-life Nortons.

Those of you contemplating the purchase of a new helmet would do well to have a look at the one sold by BMW. The problem I was faced with was eyeglasses and the flip up BMW helmet solves it. Though a bit awkward balance wise with the front section lifted, the helmet slips on easily and leaves your glasses unbent. The lock and release buttons work well and the shield is adjustable in steps to allow the wearer as much free air as he wishes. The stock shield, however, is worthless. Mine scratched up in about a month of use. The scratch resistant replacement (about \$22.) has held up well for about two months of almost daily use. The helmet is reasonably quiet and has some doodads to keep cold air from entering from under your chin. The outside is covered with a tasteful bright orange reflector design. BMW forgot to affix a Norton logo but Norton owners will find this an easy task.

The Dick Mann event seemed like a smashing success with lots of people and bikes. Though a bit slow-moving at times (the wait through interviews for the short track exhibition was particularly frustrating) there was plenty to look at and hear. Norton fans were in abundance, even a recovered Mike and Agnes Rettle who had made it through yet another Cal less the day before. The day was perfect for the Marsh Creek Road ride to and fro except that we (12 year old runt on the rear) kept dragging on the left side going (shocks on soft; I stiffened them in Brentwood) and I had one hard







# \$ WANT ADS £



ALL ADS WILL RUN FOR TWO MONTHS UNLESS YOU RESUBMIT THEM IN WRITING TO THE EDITOR.

More ads page 14

**FOR SALE**

Norton front drum/hub and spokes. \$3.00  
Speedo and tach in aluminum housing/bracket (both work)-- cracked glass on one. \$12.  
Drum front and rear wheel-spoke sets. Free.

BSA 500cc single. \$595. 99% original, stock, runs very good, good cond. except paint fade.

Kelly Moes  
3175 McKee Rd.  
San Jose 95127  
(408)259-4058  
8-5 Wed.-Sat.

**FOR SALE**

73 750 Interstate Commando  
Custom paint, rebuilt gearbox and inoastics, engine rebuilt and balanced, 180 watt 3 phase Lucas alternator, Lucas Rita electronic ignition, swing arm stiffening mod, Koni shocks, rearsets, low bars, Fiam horns, Norvil steering damper, many stainless steel parts. A beautiful Commando in excellent condition. \$1800

77 Ducati: 860 GTS  
In excellent condition, except the paint melted. Consequently asking \$1800 (below market prices).

Steel Roadster Tank	\$50
Roadster Seat (good)	\$25
Roadster Side Covers	\$5
Commando Headlight Shell	\$5
Fast Brake Lever (Mid 50's)	\$5
Twin Mikuni Carb Set Up	\$50
Triplex Engine Primary Sprocket	\$5
19 Tooth Primary Sprockets (2)	\$5 each
Roadster Grab Mail	\$5

David Crader (evenings) 408-267-6049

**FOR SALE**

Misc. MKIII parts:

1. Rebuilt bottom end. \$230.
2. Complete disc brake front end, as is. \$150.
3. Complete primary drive, good shape. \$200.
4. Many misc. MKIII bits --Call.
- \* \* \* \* \*
5. Genuine Norton 4S camshaft, new. \$100.
6. JFN type front fender, new. \$25.
7. Petrol tank, cafe, 3+ gal. \$30.
8. MKII triple clamps. \$45.
9. 750 parts list, new. \$8.
10. Brooks leather jacket, sz 44. \$50.
11. Brooks leather jacket, sz 38. \$35.
12. Stainless pre-MKIII mudguard with stays. \$30.
13. Pre-MKIII footrest hangers, complete, exo. Call.

Chris Nichols  
(415)965-4611

**FOR SALE**

1972 750cc Norton Commando. Low mileage, midnight blue fiberglass Interstate fuel tank, British Gauge. \$1,200.

Greg Romelfanger  
131 Anita St.  
Santa Cruz 95060  
(408)423-7549

**FOR SALE**

1. Fiberglass Roadster tank, black, excell. \$25.
2. Roadster luggage rack, like new. \$30.
3. Pair of Amal 832 concentrics with manifolds, cables, gaskets. \$35.
4. Roadster seat, MKIII, OK. \$20.
5. Roadster seat, pre ES, good. \$30.
6. MKIII 180w alternator with rectifier and diodes \$75.
7. 2 handlebars, 1 tiller for MKIII, 1 wide. \$5.00/ea. and haul them away!

Nathan Meyer  
1328 Spruce St.  
Berkeley  
(415)843-8612  
w/MTS 8 P.M. to 10 P.M.  
noon to 6 weeks

**FOR SALE OR TRADE**

I am selling 750 parts or am willing to trade any of these for 850 parts. You need something-- let's trade.

1. 1970 'S' model frame with cradle and swingerm. \$100. or ?
2. Primary sprockets and chains. \$40. or ?
3. Headlight- fair cond. \$20. or ?
4. Disc brake (front) spindle with spokes. Good cond. \$30. or ?
5. Other odds and ends -- call.

Bill Bernard  
9298 #A El Bordo Ave.  
Atascadero 93422  
(805)461-0283



**WE NEED  
YOUR  
BIKES**



**WE NEED  
YOUR  
BIKES**

NORTONNORTONNORTONNORTONNORTON



CYCLE ROAD TEST

# NORTON 850 COMMANDO

Norton's long-lived twin is in its second decade—and still growing!

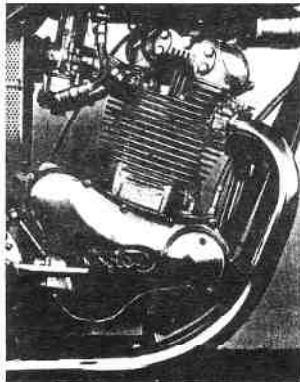
COLOR PHOTOGRAPHY BY BILL DELANEY; BLACK & WHITE PHOTOGRAPHY BY DALE BOLLER

• Guided by the simple verities of a period most motorcyclists are not even old enough to remember, Norton goes its own way. And against all odds, against the insistent logic of a thousand warbling computers, Norton's way works. Without an overhead camshaft to its name or so much as a nod toward current fashion in multiple cylinders and transmission ratios, the Norton Commando holds its place among the seeded players in the Superbike game. That place was won, and is held, with an engine old enough to vote. It began life as a 500, was stretched to a 600, then to a 650, and it became a 750 well in advance of the brilliant bit of improvisation that gave us the 1970 Norton Commando. The engine, with its two big cylinders, push-rod-operated valves and stand-offish relationship with its clutch and transmission, is a kind of living fossil. It's a dinosaur, and just about as ponderously strong.

On the other hand, this ancient engine has been put to work in a chassis that is as modern as you can imagine. Big-displacement vertical twins shake, unless fitted with Yamaha-style contra-rotating bobweights—and there simply isn't room for all the necessary machinery inside crankcases that fit the existing crankshaft and rods tighter than a gigolo's pants. So Norton's engineers improvised, and brilliantly. They correctly reasoned that just because an engine shakes one need not meekly accept an extension of that shaking to the whole motorcycle. All that is needed is some means of isolating the engine from the motorcycle's chassis, and Norton found a way. The Norton engine and gearbox are tied together with a pair of flat plates, and these were extended back to provide a mounting for the swingarm pivot. The sub-assembly thus created was then fastened to the frame through thick rubber bushings that allow considerable flexibility in the vertical plane, this being coincident with engine vibrations. But flexibility laterally would have had a disastrous effect on handling, so broad bearing surfaces were provided to prevent side motion, and a system of shims hold side clearances to only .010-inch.

The frame into which this engine/transmission/swingarm sub-assembly fits is built around a large-diameter backbone tube. It's not nearly as appealing to the artist's eye as

the "Featherbed" frame that was a Norton staple for years and is still accepted (with uncharacteristic irrationality) in Japan as the ultimate. But it does offer a very high level of efficiency in terms of weight and rigidity. Norton has been willing to deal with the fuel tank mounting problems introduced by the presence of a great, fat tube reaching back over the engine, paying a small price in that area to get the kind of structural stiffness that banishes the dread wobbles. They did make the mistake initially, of assuming that drum brakes would satisfactorily stop the Commando, but that mistake was corrected by switching to a Lockheed disc brake on the front wheel. So by 1972 Norton



The 750 was pumped up to 828cc by punching the 73mm bores out to 77mm.

had itself a Commando that would go, stop and hare around corners with the best of them, and the 750 Commando sold well enough to lend new vitality to a company that had once seemed fated for extinction.

Now, in 1973, the 750 Commando is gone, replaced by the new 850 Commando, and the biggest difference in physical terms is a four millimeter enlargement in bore diameter (from 73mm to 77mm). That raises the Norton engine's displacement from 745cc to 828cc, but doesn't do much for peak horsepower. A return to the "S" camshaft of the recent past, with milder timing

than that employed in last year's Commando 750, bolsters mid-range power at the expense of what would otherwise be a bigger surge up near the redline. In consequence, an engine noteworthy for muscular thudding and chuffing at comparatively low crank speeds has had this basic character intensified.

Other engine changes have been made, but none aimed at more power. The crankcase has been strengthened to cope with the increased pressure from above, and there's a new flywheel made of an "upgraded" material and a few ounces heavier than the one for the 750. Early 750 engines had their cranks supported by a roller bearing at the output end and a ball bearing on the timing side. That arrangement was abandoned in favor of two roller bearings in 1972, but the lack of any center mainbearing and resulting flex in the crankshaft have prompted a switch to German-made "Superblend" roller bearings in the 850 engine. Flexing of the crankshaft tends to concentrate bearing loads on the ends of the rollers, and in a very narrow contact line along the races. The Superblend rollers have a rounded taper ground at their ends to spread the contact area when the crank begins to whip, and that will be good for long-term durability. Of course the crankshaft doesn't get whippy unless plenty of revs and throttle are being applied, but then from what we've seen that is precisely the riding style of most American Commando owners. Along with the changes already noted, Norton's venerable twin has been given thicker valve guides (which we are assured do not bell-mouth and dribble oil into the intake ports like the earlier guides) and the phosphor bronze camshaft bearings that have worked better than any of the alternative materials Norton has tried.

Push-button starting is not likely to appear on the Norton Commando 850 any time soon. From 8 on Norton's technical specification sheet tells us that "the kick starter crank has been toughened, to prevent distortion, and lengthened to improve leverage." That should tell you a lot about the level of pressure needed to crank the Norton 850 engine. Small riders are going to wish that the kick starter pedal had been lengthened too,

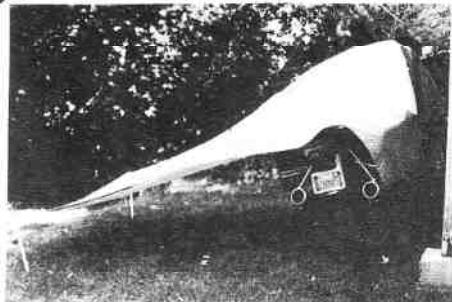
JUNE 1973

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# THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH



NEW SHELTER FROM EUROCAMP

A prototype of the new Nomad 1 (shown above) has completed field testing on Mt. Howser in Colorado and is due to be released soon. The lightweight (4 oz) yet strong shelter makes an ideal packalong for the wayfaring adventurer. Recent lab tests have proven the 5mil space age fabric to be weather resistant in temperatures between -50 and 150 C. The Nomad 1 can withstand 150mph winds and is rot and mildew proof. A newly developed liner treatment, Durashield, makes the fabric highly resistant to tears. The Nomad 1 fold easily to a compact 1 3/4 X 1 3/4" package for convenient storage.

Installation is accomplished in seconds and is a one-person operation. A specially formulated scent applied to the grommets wards off bears and other furry creatures. Campers can leave foodstuffs under the Nomad 1 with no fear of animal tampering. An optional alarm system installs easily.

Current plans call for a release date of Dec., 1988, just in time for the increasingly popular sport of winter camping. The Nomad 1 package (fabric, stakes, cords, and Hardy rubber stops) will be offered in a variety of dayglo colors and patterns designed by Enrico Ferrucci of Monza, Italy. The Nomad 1 comes with a limited one-year guarantee. At the introductory price of \$129.95 the Nomad 1 is a BEST BUY.

**PRICE LIST:**

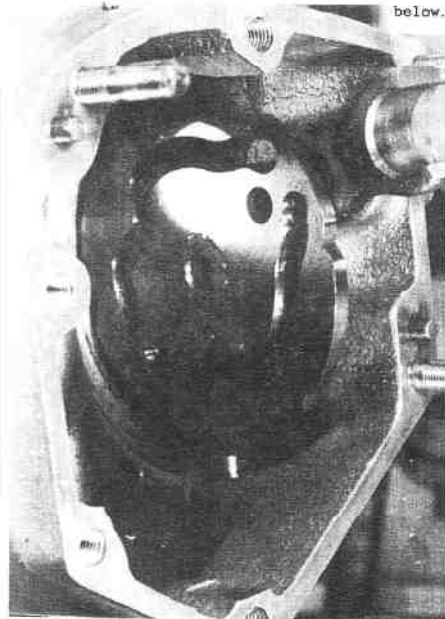
Nomad 1 package	\$129.95
Norton motorcycle with Adaptill points of attachment	\$4,379.00
Alarm system	\$79.95
3 yr service contract	\$29.95

**Replacement parts:**

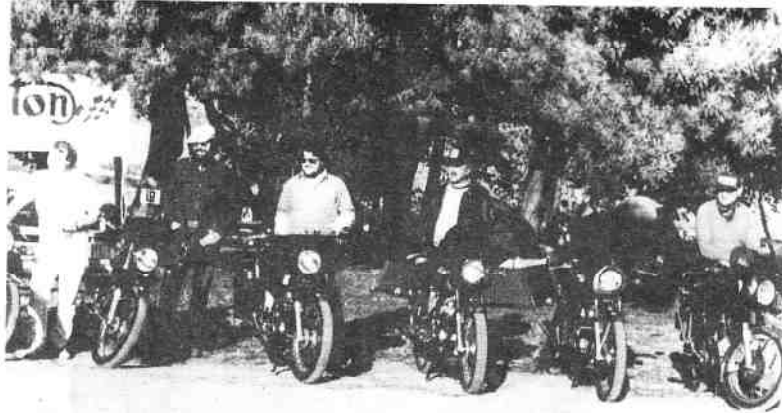
Durashield	\$69.95
Posts	\$29.95 (ea)
Hardy rubber stops	\$6.95 (ea)
Adaptill	\$2,597.00 (ea)
Sticker	\$4.95 (ea)
Adaptill conversion kits:	
Any Japanese motorcycle	\$39.95
BMW	\$69.95
Amazons	Free



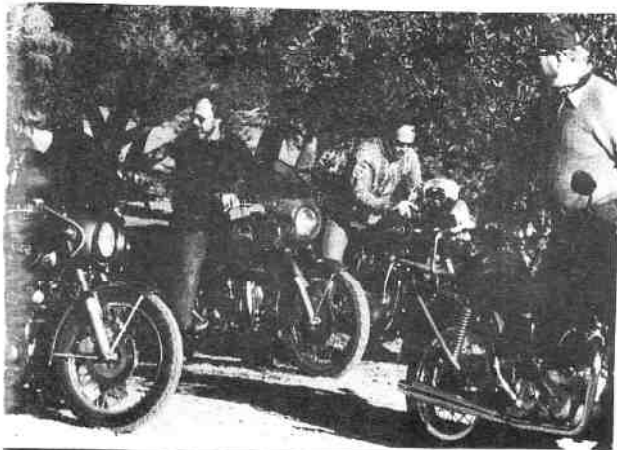
See tech tip article by Scot for photo above and below.



**NORTON OWNERS CLUB**

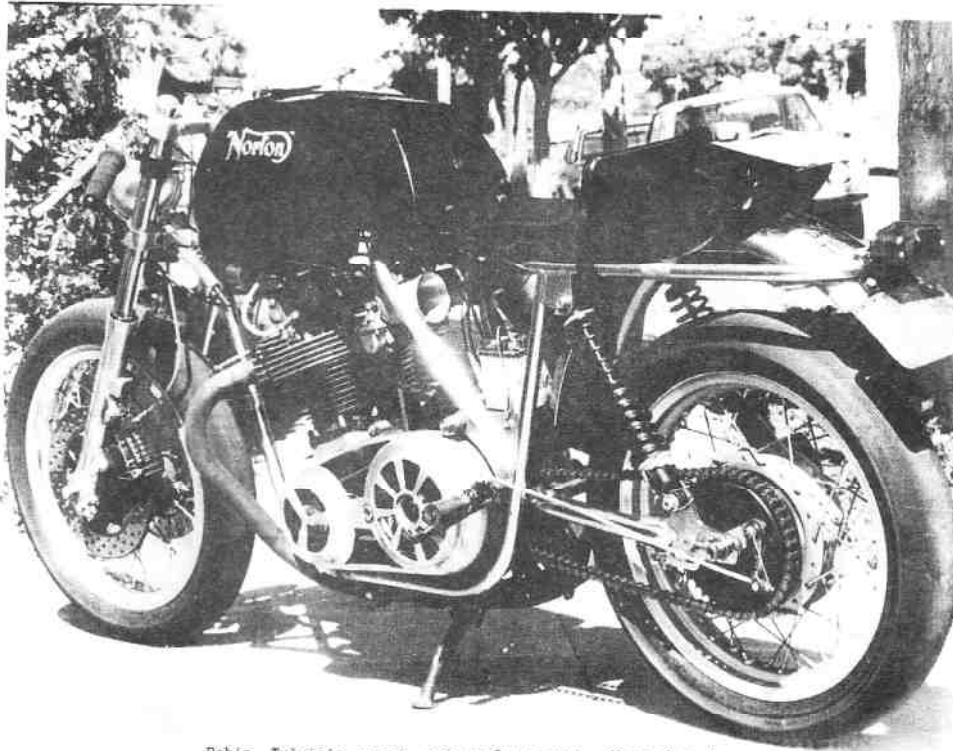


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THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH



Robin Tuluie's racer set up for street. Note that the frame has been blessed.



Robin at speed at Sears.



Dick at speed in driveway.



Dick Rutter, not at the Rally, wished he were.



Alan Goldwater oils tire prior to slalom event at the Rally while nearby competitors watch attentively in hopes of gaining a tip.



## THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH



so they can jump on it with both feet. Both feet is what it takes when the engine is cold, and its pistons glued in place with chilled motor oil. It is God's own blessing that the engine really isn't reluctant to start, once you have persuaded the crankshaft to rotate. Twirl it fast enough to draw fuel into the cylinders and it fires. You have to be careful not to flood it with over-enthusiastic use of the carburetor ticklers, but even then it will clear itself with a couple of sooty coughs and settle down to business. Starting it warm is no trick at all: one kick and it's running.

Sadly, the Norton's willingness to start is matched by a willingness to stall unless the idle is set rather high. Its Amal concentric-float carburetors (devil take them) refuse to be adjusted for a low, even tickover. You can fiddle the idle mixture screws and throttle stops until everything seems perfect and the engine is thudding away with a wonderfully even beat—but as soon as you blip the throttle one time your perfect idle is transformed into a case of the blind staggers. After a while you learn to settle for a ragged, busy 1,200 rpm idle which drives you crazy when the bike is stopped for a traffic light, but at least keeps the engine from stalling.

You are entitled to wonder why a fast idle is such a bad thing. Here's the reason: the 850 engine's vibrations are more than the rubber mountings can handle at some engine speeds. Indeed, at certain speeds the Isolastic mounting makes things worse, and the worst condition is encountered between 1,500 and 3,000 rpm, with some really interesting pulses coming up through the chassis as low as 1,000 rpm. Still, it is tolerable at 1,000 rpm, but it will drive you right off the bike at 2,000 rpm—at which point the oscillations are so bad that the taillight vibrates vertically with an amplitude of nearly two inches and one's vision tends to blur slightly. There isn't quite that much shaking with the engine under load, but you get it in fulsome glory when waiting for a traffic light to change and nicking the engine to keep it from stalling.

There isn't much positive to be said for the 850 Commando as an around-town motorcycle, except that it lunges and stops pretty well. The vibration at low speeds forces you to do a lot of riding in the lower gears, which keeps the engine spinning above 3,000 rpm and stops the shaking, but seems overly dramatic in light of the exhaust pipes' tendency to resonate themselves into a window-rattling fit above that same 3,000 rpm. In this connection we should point out that the 85.5 dB(A) noise level registered by the Norton under the CHP test procedure is deceptive. In this test you run past the instruments in second gear, accelerating from 30 mph, and the plain truth is that the tall-gear Norton gets just beyond the range of the sound meter's microphone before working itself up to full bellow. So when you hold

it in second gear in fast traffic, keeping the revs up to keep the vibration down, you raise a lot more commotion than anyone wants to hear.

On another level, the vibration at low engine speeds to some extent cancels one of the 850's best features. The engine pulls like an elephant all the way from about 2,000 rpm, but you find yourself always reaching for another, lower gear any time the revs fall below 3,000 rpm. The result is that the theoretical advantage provided by the extra displacement and a milder camshaft remains theoretical, you have to do just as much shifting, or more, than was required with the 750 Commando and is required when riding a high-revving Japanese multi. The 850 doesn't shake any more than the old 750, a little less in fact, but it does its worst shaking at lower revs and the change in overall gearing means that the engine is always turning more slowly. The net result is that you do get more vibration at anything short of freeway speeds.

Where the 850 Commando engine shows itself to best advantage, and is really impressive by any standard, is away from the urban crush, out on the open road. There the engine is always above that critical 3,000 rpm and the bike feels glassy smooth. At 70 mph it's burbling away happy as Christmas at 4,000 rpm, and feels as though it would lope along that way forever. It is as pleasant an Interstate flyer as you are likely to find this side of an air-conditioned Cadillac, and a lot less dull.

Even so, it is not zapping along the straight-line Interstates that the Norton does best. Where it shines, and edges out most other Superbikes, is hooting along zig-zag mountain roads. The 750 did that sort of thing with real flair, but it yields primacy to the new 850, which incorporates subtle changes in steering geometry. The 850 Commando is a big motorcycle, with a 58-inch-plus wheelbase and a weight of 462 pounds, but you'd think maybe it's a lightweight judging by the way it can be flicked around on the road. When you first start riding it that way, there is a temptation to begin mentally composing letters to Norton-Villiers' Managing Director asking why the 850 Commando was given so little side clearance, why the centerstand drags in left turns, and why the exhaust pipe develops a big flat spot from making turns to the right. One thinks, too, that the engine really isn't doing all it might with 828cc, that the bike isn't rushing along the road like other Superbikes. But then you notice that your familiar 20-mile loop of mountain roads has been travelled in minutes less than is usual, and when you stop for a breather you notice that the tread blocks on those fine Dunlop TT100 pavement grippers show a feathered wear pattern right out to their edges. The evidence is clear and conclusive. The Norton has been going genuinely fast, making maximum use of a pair of very good tires and getting from point to point with rare dispatch. And effortlessly. too. The engine hasn't been pressed any-

where near its redline. The handlebars seem to turn themselves as the bike sweeps into slow corners and the Commando does most of its own aiming through fast turns, making any rider feel just a touch better than he actually is.

Would that the Commando was as comfortable as it is fast and agile. That backbone tube mentioned earlier reaches back from the steering head just a little too straight and level, and the underside of the seat is grooved for clearance in a way that leaves the padding too thin up near the front. When you're trying to ride briskly you'll be sitting right where the padding is especially thin. Fast riding demands that your weight be placed over the footpegs, and these are too far forward, which brings you right up against the back of the Norton's fuel tank and straddling what feels like a bare backbone tube. As one of our staffers put it, "It's like having a bunch of rowdy friends ride you out of town on a rail: it's fun, but that doesn't keep your tail from getting sore."

What the Commando badly needs is to have more padding over the front part of the seat, and to have its footpegs moved back a couple of inches. When the pegs are moved back the shift lever will have to be shortened, but that will help cure another problem. That old Norton gearbox definitely has it over more modern transmissions in terms of smooth, low-effort action, but there simply is too much travel. Human ankles don't swivel far enough to handle the distance the lever has to be moved, so you sometimes miss gears and hit neutrals just because your ankle hinge reached its limit-stop before the gears fully engaged. Apart from that, the gear change mechanism is a marvel—and so is the clutch, likewise with one qualifier. This new Norton's clutch is substantially the same excellent diaphragm-spring unit used in the Commando since its inception, with a couple of extra plates (now a total of five). The clutch's all-metal plates make it nearly bullet-proof and the over-center action of the diaphragm spring give it a lightness others with the same torque capacity are lacking. However, its engagement point is speed-sensitive: use lots of revs and full engagement does not occur until the lever is almost fully released; try easing away at low revs and you'll get full engagement as soon as the lever starts moving away from the grip.

Sometimes the Commando's suspension feels as though you're getting hard contact with the bump stops as soon as the wheels move. It has enough travel, but seemingly has an excess of springs and a shortage of damping. Expansion strips on the freeways jolt the Norton harder than any other Superbike, and the suspension harshness is the only handling deficiency. Fast, bumpy turns make the wheels dance and chatter enough to impose a lower limit on speed than do the tires or general stability.

Drag-strip testing the Commando 850 was fun, and a frustration. Fun, because

(Cont. p. 11. Also, see p. 10.)





# THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH



## NORTON COMMANDO (Cont.)

the bike scampers through the quarter-mile very quickly. Frustration (of a sort) because no rider skill is required. The 850 engine's power band is so broad that you can make your upshifts anywhere from 6,000 rpm to 7,000 rpm (the redline) without changing the numbers more than a tenth either way. The Commando is also the most consistent drag-strip performer we've ever had, turning run after run at almost exactly the same speed and elapsed time. Its brute torque removes any real need for refined technique in getting underway—you just whiz the engine up to about 6,000 rpm and drop the hammer. The Norton takes off like a shot, runs straight and true, and turns the same times every time.

Norton's 850 Commando has great visual appeal for anyone who likes the lean, rangey look. Its 19-inch wheels make it look spidery, and they've done wonders getting 3.5 gallons into a container that has to straddle a big frame tube and still looks small. The only jarring note in the bike's appearance is the engine itself, which has a cylinder and head that look too puny for 850cc worth of piston displacement. The reason is the very minimal finning, which is too scanty for a balanced appearance and perhaps even too scanty for adequate cooling. We also think the handlebars are too wide to look right, and they don't feel right to us, but the chaps at Norton-Villiers say their dealers keep asking for precisely the sort of bars they've put on the 850 Commando. In any case, handlebars are a matter of individual preference and easily changed. Owners may also want to do something about the dangling throttle cable, which hangs down in a loop right where it can snag on a bush or something if you get sloppy and cut the inside of a righthander too close. Snag that cable and the throttles will be jerked wide open. That certainly will move the bike away from the inside of the turn, and it is likely to be more of a readjustment in line than you really wanted.

We also don't care much for the handlebar-mounted switches and buttons, which are—all claims for ergonomic design notwithstanding—a study in confusion. The high/low beam switch makes sense, but the up and down action of the identical turn-indicator switch does not. And then there are the two buttons above and below each switch, four in all, and all identical. It is a confused layout, and it confuses.

Finally, there is the traditionally-British weeping of oil. The Norton engine left puddled proof of its presence back when they used a timed crankcase breather; it does so still with the new open breather pipe—which carries crankcase fumes to the aircleaner. The current switch to plastic sump-plug washers, replacing those infamous and failure-prone fiber parts we all know and loathe, may dry up the seepage around the sump plug—but our bike was fiber-washed and it drooled and slobbered all over its belly. There was also a

creeping wetness around the oil hoses, which simply slip over stubby tubes and are clamped in place. Maybe next year Norton will have proper, crimped-ferrule fittings on the Commando.

But those are the kind of minor aggravations you'll encounter all over the Norton Commando 850, along with pegs placed just a bit too far forward and a seat without quite enough padding. To the right kind of man, these pale to insignificance beside the Norton's virtues. It is, above all else, a sporting rider's motorcycle, and offers more sporting fun for that kind of rider than any other Superbike. Norton takes a different, and sometimes unfathomable road to total performance, but it gets there all the same. Riding the Commando 850 is a return to the sounds and sensations, to the verities, of a thoroughly entertaining (and sometimes exasperating) past—but at today's performance levels in terms of braking and sheer, thrusting speed. ®

## SINGLE MINDED (Cont.)



Differing markedly from the complexity of the Manx's bevel drive to the camshafts, the Weslake uses a simple roller chain from the half-crank-speed sprocket in the timing cover to the two cam sprockets. Tensioning is with a moveable nylon guide behind the rear run of the chain.

Weight of the engine expected to be about 63 pounds, about five pounds more than the speedway singles with double overhead cams. Some weight could be saved by using an alloy cylinder liner with a Nikasil bore surface.

With say, a Quaffle five-speed gearbox, the overall weight of the engine and transmission would be under the weight of Honda's 95-pound XR500 five-speed four-valve single.

Price of the 500cc Weslake is expected to be about £1500 complete. Testing of the first engine in a couple of weeks time in a Norton chassis.

And hopefully the spirit of Joe Craig will look favourably upon it. If only to keep his beloved Manx engines alive.





## THE NEWSLETTER OF THE NORTHERN CALIFORNIA BRANCH

ride coming home (kid decides to ride in car with mother and brother) after forgetting to reset to softer. Dick Rutter made me feel better when he related that when he wheeled his mount out of the garage that morning the center stand fell off and the kill switch and horn wouldn't work. After deciding that he didn't need a kill switch or a horn he took off for Brentwood. When he arrived the horn worked.

And Dan Phillips tried his luck in the scrambles and said that his forearms felt like lead after the race. I remember reading somewhere that motocrossers are considered to be in first place among people considered "in shape". Stick with it, Dan!

On the theft front, Robin Tuluie's stolen Honda was recovered about a week later in Berkeley WITH THE ENGINE STILL WARM. Marque aside, a week's vacation in Hawaii to the first reader who correctly identifies the proper course of action to take under these circumstances.

Norton riders in the Rohnert Park area will be able to get their spares soon at GP Cycle which will be relocating there on Dec. 1. New address: 75 Executive Way, Rohnert Park, 94927.

And, as we slip off to the printer, I've decided to add another four pages because we had so many good photos to print this time. The sequencing of the newsletter is a bit askew as a result but I hope I've given you a decent roadmap via the 'Cont. on p.--' messages. I dislike magazines which continue articles this way but it's a question of time and at the moment that commodity is in short supply in my life.

Alan Goldwater is responsible for printing up most of the photos. Thanks, Alan, and with the printer's cooperation I hope they've reproduced well.

*Lu*

## MORE WANT ADS

### FOR SALE

1. Early Commando frame (plated) includes central oil tank, battery platform, swingarm, transmission, engine, all plated, and rear shocks, triple clamps f/forks. \$175.
2. Fiberglass racing tank/dual seat combo, needs paint, unique piece. \$75.
3. Atlas slimline frame, with shocks, triple clamps, swingarm. \$100.
4. One pair extended forks and TLS sliders. \$25.
5. Bolt up rear wheel complete with brake drum/sprocket and brake plate, good Dunlop WM2-19 rim. \$50.
6. TLS brake plate, complete. \$25.
7. S type rear chainguard, fair. \$15.
8. 750 seat, small tear, steel pan. \$30.
9. S type central oil tank, black. \$10.
10. S type side panels, pr, with Lucas ign. switch, metalflake blue. \$35.
11. Atlas gastank with chrome tank badges. \$75.
12. 850 stainless race fender. \$20.
13. Fastback oil tank, chrome plated. \$35.
14. Glass Roadster gastank, blue metalflake. \$75.
15. Atlas transmission with folding kickstart, rear engine plates. \$100.
16. Early Commando primary cases (big alt. bulge). \$85./pr.
17. MKIII Roadster seat, small tear. \$30.

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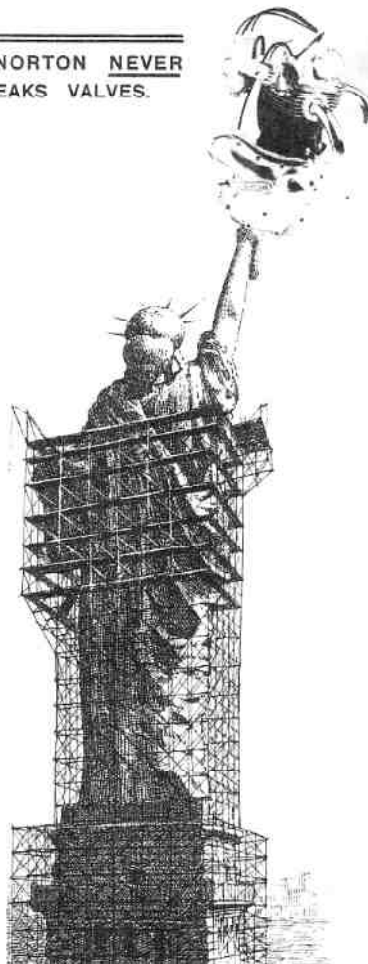
### WELCOME TO THE CLUB

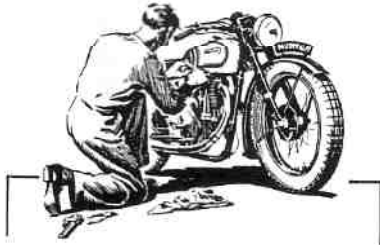
Dave DeBella	Los Altos
Dave Hultberg	San Mateo
Lynne Miller	S.F.
Gene Ross	Visalia

### SPECIAL TO THE NOTICE

Our East Coast sources have uncovered engineers' drawings detailing the early proposed reconstruction of the Statue of Liberty. Initial favorable reactions to the project ran into difficulties, however, when the EPA pointed out that the noise from the nighttime operation of the engine would keep homeowners as far away as Philadelphia awake. After numerous lab tests to try and silence the Big N (as it was fondly called), the project was scrapped.

### THE NORTON NEVER BREAKS VALVES.





## TECH TIPS

WHAT GOES UP CAN COME DOWN...

OR

by Scot Marburger

### THE NORVIL REVERSE CAM PLATE

Ever put rearsets on your Commando, Atlas or Domin, to move your foot position to a more sporting location, only to find that the slop in the shift linkage worked a hardship on your feel for the tranny? In the early '70's (and probably before that), the Norton factory massaged the cam plate in the AMC gearbox to change the rotation direction of the cam plate while maintaining the relationship of first through fourth gears and neutral. This was used on the Norvil Production Racer and allowed the standard shift lever to be positioned 180 degrees around on the transmission. This moved the rider's right foot back about six inches while preserving the usual one-up-three down shift pattern. It also eliminated the slop from the Dunstall type shift linkage.

For years I've heard that all the factory did to reverse the shift pattern was to flip the cam plate over on it's splined shaft. That sounded just a little bit too simple, but without a reverse cam plate to compare the standard item to, the rumors remained unconfirmed. Recently (in Norton rebuild time, that is) I had the opportunity to recondition a gearbox from a Production Racer. In the process, I found the magic that the factory had wrought. The plate had indeed been flipped about on the shaft, but there were also a few extra notches on it's perimeter. It looked like all I needed to make a reverse cam plate was my stock plate and a pattern. With both now in hand, I set to work and in about an hour I had two reverse cam plates. I also made a tracing of the reverse cam plate so that I, and you, gentle reader, could make another plate should the need arise.

If you lay the tracing on the stock plate with the center holes matching and the wiggly grooves lined up, you'll notice that the stock plate will match the tracing on one half. The other half is where the new notches go. You'll also notice that the lobes between some of the notches are lower on the reversed plate than on the stocker. This lowers the effort needed to change gears, and at least in one place, removes an extra notch from the stock plate.

To make one of these reverse cam plates, you'll need your stock plate, a hammer and drift, a hacksaw, a few files, and some wet and dry sandpaper. A belt sander and motorized buffing wheel are nice if you have them. Start by marking the side of your stock plate that the spindle sticks up out of with three closely spaced punch marks. Then while you support the plate on some blocks of wood or a vice, use the hammer and drift to knock out the spindle. Use a magic marker or some machinist's blue to color one side of the stock plate all the way around about 3/8 inch in from the edge. While that's drying, cut out the pattern (hopefully from a xerox of this Notice) and coat one side with rubber cement. Now coat the side of the cam

plate with rubber cement. After the cement dries thoroughly on both pieces, make a sandwich of the pattern, a piece of wax paper, and the cam plate. Line up the pattern with the wiggly lines and notches in the stock plate and carefully withdraw the wax paper from between the two. Check to make sure that the alignment of the pattern and the plate is very close to perfect, then take a razor knife and mark the profile of the pattern in the blue on the stock plate. A machinist's scribe will work for this, but if you need to cut through the pattern's paper anywhere, the razor knife works better. Remove the pattern and the outline of the new notches should be visible in the blue. Using a hacksaw and files, carefully cut the new profiles into your cam plate, then sand and polish them until they shine. If you've got one, a belt sander can be used for cutting the notches and will save you a lot of time. The higher the polish on the edge of the plate, the slicker the transmission action will be. When you're done, press the spindle into the side of the cam plate opposite the side you marked with the three punch marks. Now comes the tricky part.

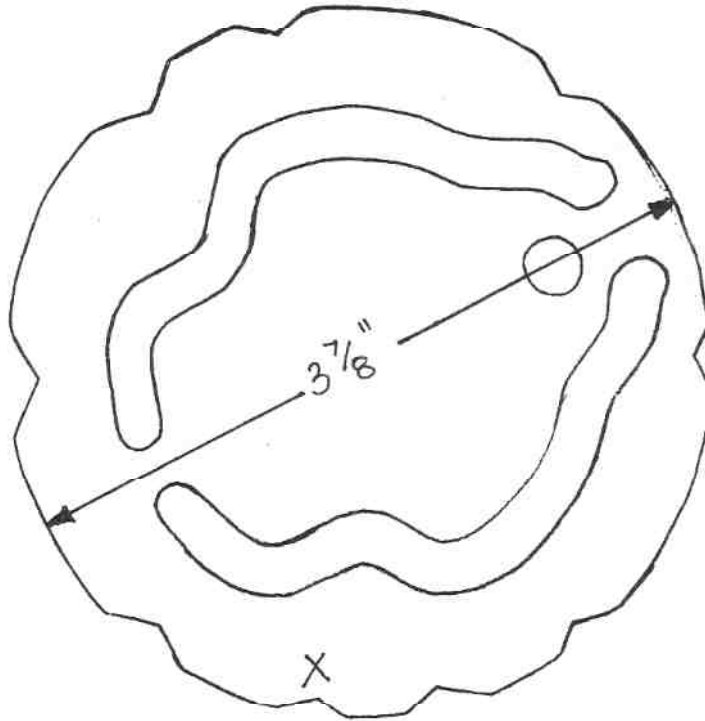
In order for all the gears to engage in the limited travel of the quadrant, the cam plate must be timed to the transmission. This means that the quadrant (that thing with the notches on one end and a semicircular claw on the other) has to line up with a particular stud in the tranny case when a certain notch in the cam plate is engaged by the detent plunger. One picture is worth a thousand shifts in this case, so there's a picture close by that shows the correct relationship. Start by installing the detent plunger only part way into the tranny case, just enough so that the plunger locates in the notches of the plate but not enough so that the plate is hard to turn. Then position the quadrant as shown in the picture. Line up the correct notch in the plate with the plunger and push the spindle on the back of the plate into the bush in the tranny case. You'll feel when the splines on the spindle start to engage the quadrant. Just rock the plate back and forth slightly to let them slip by. Thread the bolt into the back of the spindle to hold it in place.

Now it's time for a dry run. Install the gears and shafts in your tranny, then the inner cover. You only need one or two nuts to hold it in place at this stage. Assemble the outer cover and it's shifting paul and springs, and put this on the tranny, too. Now check that you can engage all four gears, and that neutral is where it should be. You might have to turn the mainshaft or sleeve gear to get some gears to engage, but that's normal. The important thing is that you've got all your gears where they should be. By the way, to get the standard shift pattern, make sure that the shift lever is turned toward the back of the bike. If you want a one-down-three-up pattern, leave the lever pointed to the front of the bike.

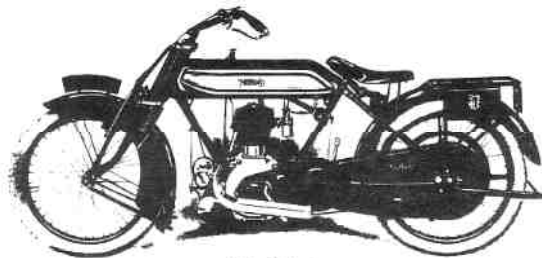
If you have problems, it's most likely that the cam plate and quadrant aren't timed properly. This is almost certainly the case if you get every gear except first or fourth. Take the outer and inner covers back off and check that the alignment is EXACTLY like that shown in the photo. No, Virginia, close isn't good enough. Remember, this is a REVERSE cam plate, and the pictures in your Clymer manual won't do you much good. It's not really that difficult if you're careful, but you'll go through a lot of gaskets if you don't do the dry run until everything works like it's supposed to. When everything work's right, take the covers and gears back out, clean 'em off real good, and reassemble using your favorite gasket sealant and the proper torque on all the fasteners. Check that it still shifts correctly, wipe your hands off, and go for a spin.

By the way, before you consider this mod, you should know that to remove the cam plate you have to remove the sleeve gear. To remove the sleeve gear, you need to remove the main shaft, and to remove the mainshaft you need to remove the clutch locating circlip. Since this is located behind the clutch hub, you need to remove the primary's gizzards, too. Just thought you'd like to know.

(Cont. p.14)



REVERSE CAM PLATE PATTERN  
SPINDLE (WHEN INSTALLED) EXTENDS  
INTO PAGE. "X" MARKS DETENT USED  
FOR TRANSMISSION TIMING.



1921 Big 4



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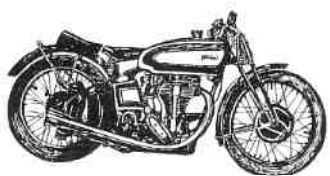
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