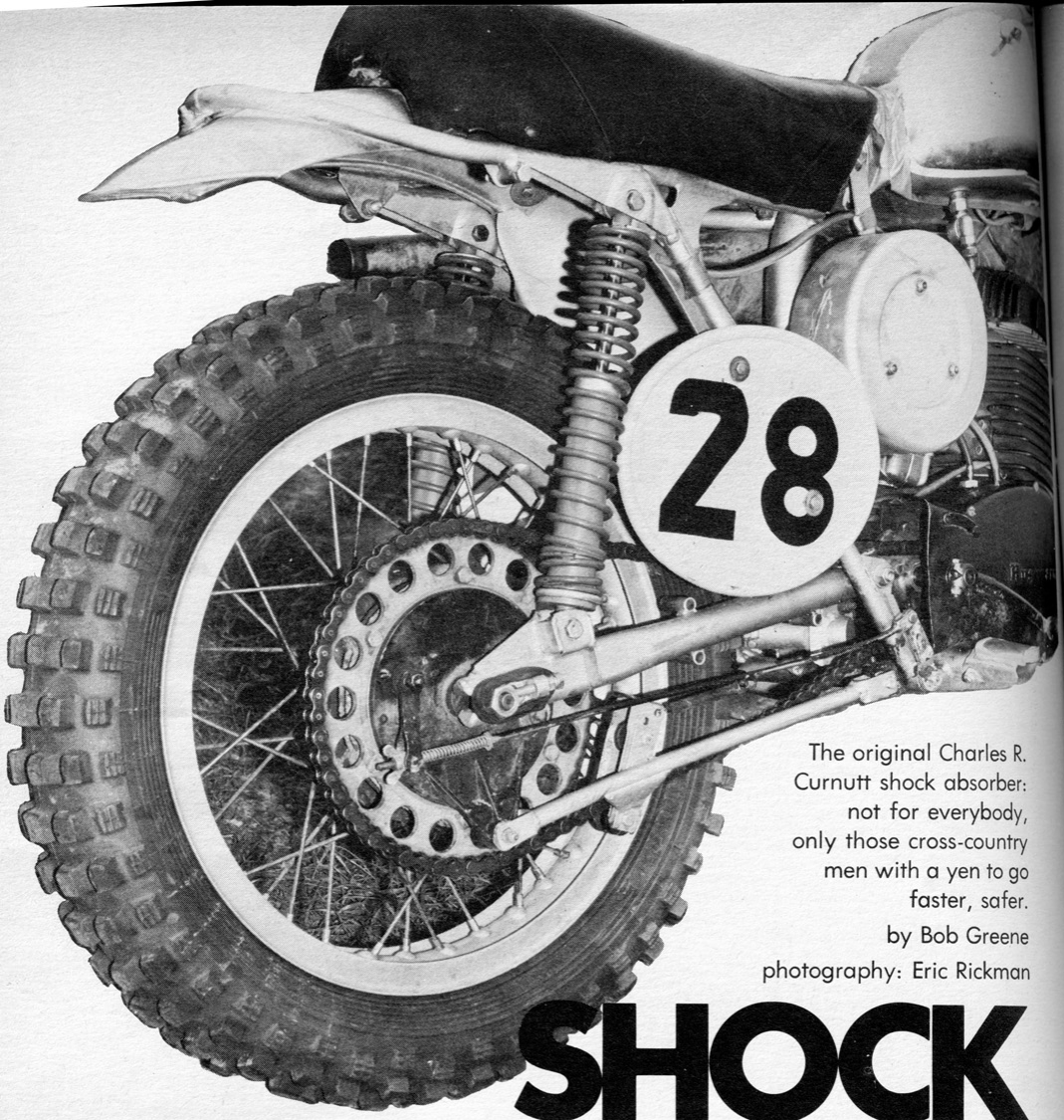


The original Charles R. Curnutt shock absorber: not for everybody, only those cross-country men with a yen to go faster, safer.

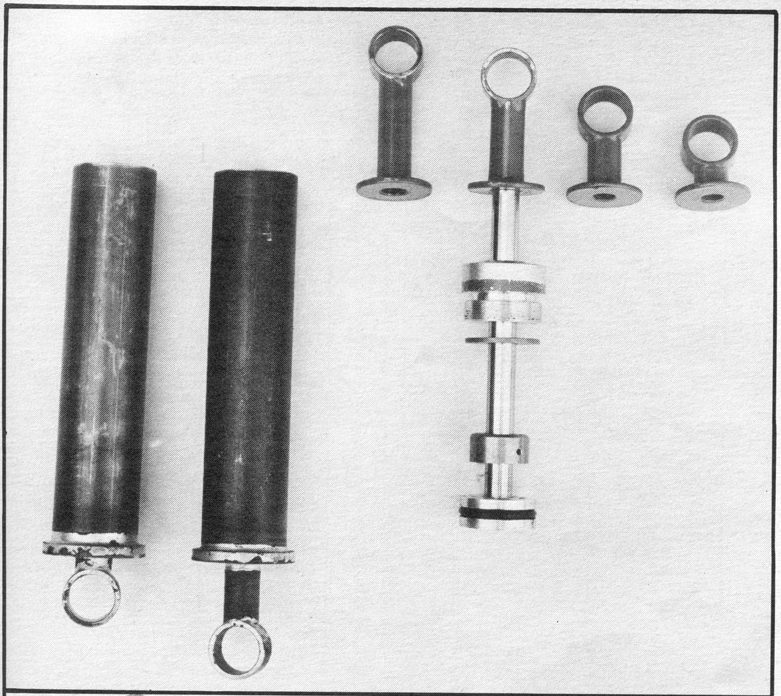
by Bob Greene

photography: Eric Rickman

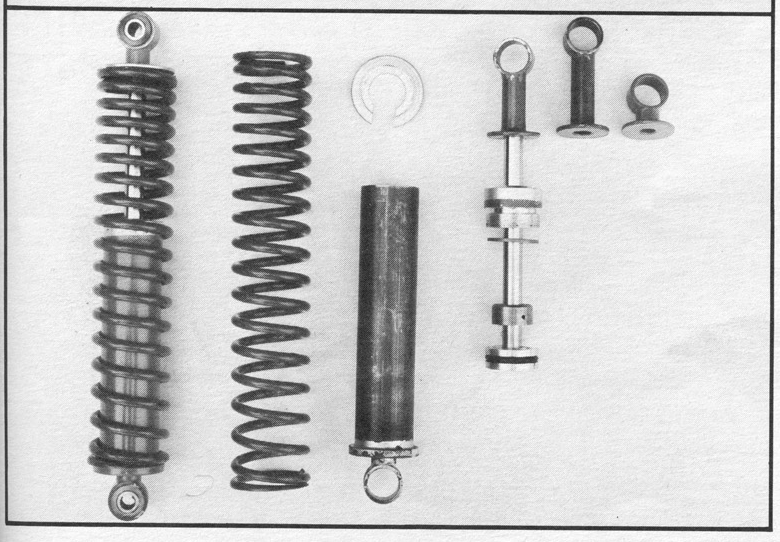
SHOCK WITH A BRAIN

The enduro boys laughed so hard tears came to their eyes when Charles Curnutt stroked nonchalantly by on this jacked-up Triumph Trophy model. Even I must admit to a smile when, in the middle of a fire road turn, Chuck cruised lazily alongside with his home-made, 2-foot-long rear shocks, wrapped in old inner tubes, sucking and squirting oil; it was a little comical. The year was 1953 or thereabouts and the occasion was the Flintlock Enduro out of Santa Barbara, Calif., and Chuck, dissatisfied with the meager best that industry had to offer, had begun his personal suspension crusade that was to struggle through 18 years of endless experimentation and modification before the first sign of reward for this truly different off-road suspension system.

But that day did come, due to this man's rare perseverance, and perhaps the real story behind his achievement is the fact that the Curnutt shock now in use by off-road wizard Terry Clark and a fast-growing multitude of other dirt champions and playbike riders in general is basically the same unit as the one which provoked so much mirth almost two decades ago – Charles Curnutt is a perfectionist. No longer are the crude cloth packing seals employed; the inner tube boots are gone; and shock absorber stroke has been reduced to an optional 4 or 5 inches for public acceptance; but the principle remains, the utilization of a full-length spring.

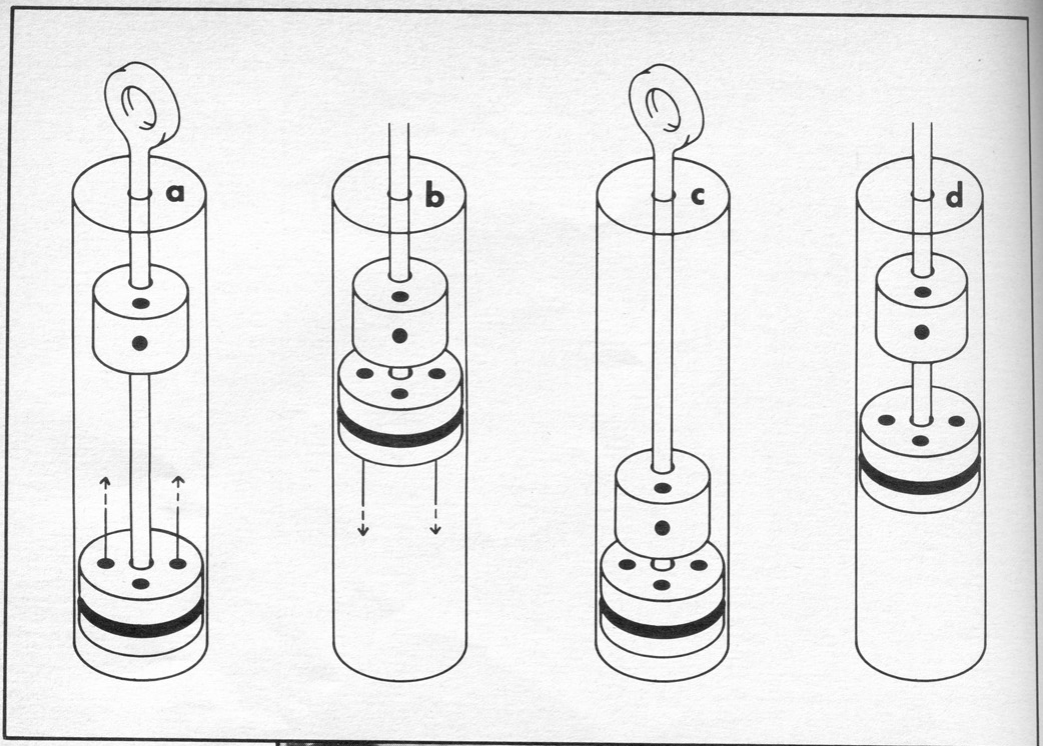


1 Ironically, the Curnutt shock on moto-cross ace Bill Clement's Husky has been around longer than he has, is just now being "discovered" by off-road shoes. Various lengths of mounts at left, two for the housing and four for the top of the shaft, permit at least eight different-length setups for each size shock. Purpose of the different length mounts is to position rear tire so that it will not bottom out on fender. Naturally the shortest usable reach is ideal unless rider wants bike to stand taller or improve axle-to-swing-arm-to-gearbox-shaft relationship. Curnutt feels the line between all three should be straight as possible; others think swing arm should parallel ground for the best ride, handling.

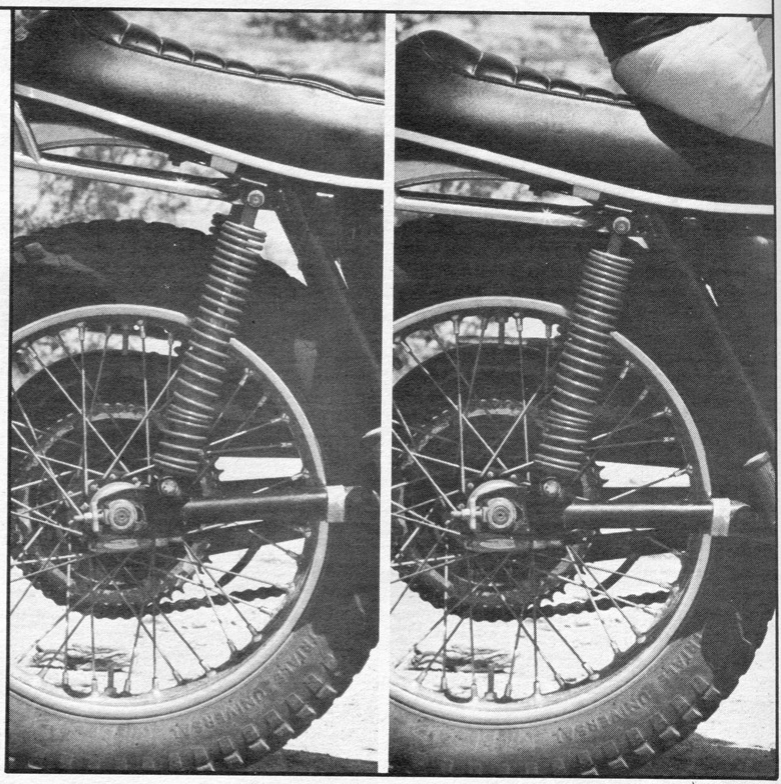


2 Fully assembled shock at far left of photo is compared to the whole of its components, plus a couple of extra top mounts. Reading left to right: spring, spring keeper, shock body, and plunger shaft with floater valve (brain) right above O-ringed main piston. Higher on shaft are wafer bumper washer and screw-in top cap. Heft of components, quality of steel and construction methods are top caliber, as we will see later on. Nothing about the Curnutt is complicated or difficult to disassemble or reassemble. Rebuild kits are available for $5. About one-third of the starters and one-half of the finishers in the Mint 400 reportedly ran these units.

In a few words, this is Curnutt's secret: the 30% longer spring completely eliminates coil bind or coil overstress and allows greater latitudes of control because of the vastly less critical limitations of the longer wire. But it doesn't begin to tell the whole story behind this completely unique concept in rear suspension. The elimination of the three-stage adjustment feature found on conventional shocks, for example, crowded out of the picture by the extra length of spring which extends clear to the bottom of the cylinder on the Curnutt, dictates that this shock be a strictly custom unit. Once fitted to your bike, it will work for you, and possibly you alone. This unique side characteristic may not always exist, but it is likely because each shock is tailored for your particular riding weight, riding style and weight of machine. Once tuned-in, you may not ride double successfully or loan your machine to a rider of greatly different weight or riding style with optimum results, so selective is this damper that will ideally tolerate only a 50-pound weight variation. The shock can be readjusted to suit varying conditions, but it is not the conventional click-click, push-pull deal. We'll get into adjustment later, for there are actually many more adjustments possible than with the conventional cam preload arrangement, but by virtue of their numbers, they take more time. Should you care to ride double extensively,



3 Various stages of action: **A** - On sharp, full impact, piston accelerates downward, away from floater valve. In this position, piston will return five times as fast as in drawing C. **B** - With bike in mid-air after full impact, floater settles over piston, slows extension. **C** - Upon an easy landing, floater has time to come down farther and restrict damping sooner, prevent pogo effect. **D** - On a 2-inch fast washboard, for example, floater valve is unable to keep pace with piston, stands off and allows piston to do its thing: 50/50 damping.

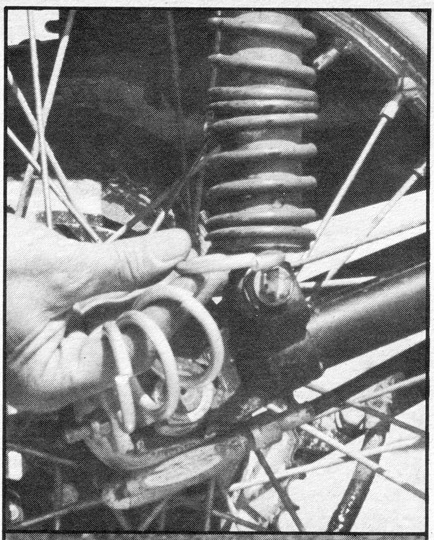


4 1970 Triumph TR-6 test bed shows desired sack with and without 200-pound payload. Even with 2-inch preload, wheel has 3 inches travel available — ideal. Since MSQ interview, longer length springs have been added to line to accommodate fat people, elephant motors. Note that this heavy bike and rider required an extra section of coils below main spring for proper preload. Forty-inch motors and over-240-pound riders will still need supplemental coils but not as much as seen here. Knowing your weight, Chuck figures it out.

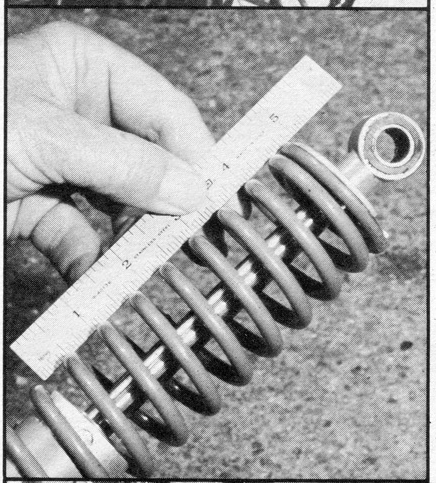
however, the Curnutt can be set up to accommodate any weight, with subsequent sacrifice in solo performance. This is the one disadvantage of the shock. Buy that and we're over the hump.

Utter simplicity is another keynote of the Curnutt shock absorber. Upon looking inside, the first-time inspector is flabbergasted to find that it has all the complication of a Flit Gun; on the plunger's end is a piston with four angled bypass holes and an O-ring seal. Riding atop the piston, and free to ride up and down on the shaft independent of the piston, is a floating valve about the size of an old Tinker Toy connector, but with only one oil bypass orifice. Like me, you might ask: "What would happen if the floater valve was removed?" Actually Chuck's early Fifties version did not have the floater valve, and he maintains that you can get by without it, but the truth of the matter is that this little gizmo is the brain of the system; it senses the terrain through wheel movement and allows the shock to operate with minimum effective compression damping necessary for control, relative to the speed of wheel movement. Take this floater valve out and the Curnutt shock is so simple it's disgusting; put it back in and you can go bananas trying to explain its function in all phases of operation over varying terrain at different speeds and conditions. Briefly, while the main piston valve controls compression damping, the function of the floater valve is to control extention damping. Let's see how it works.

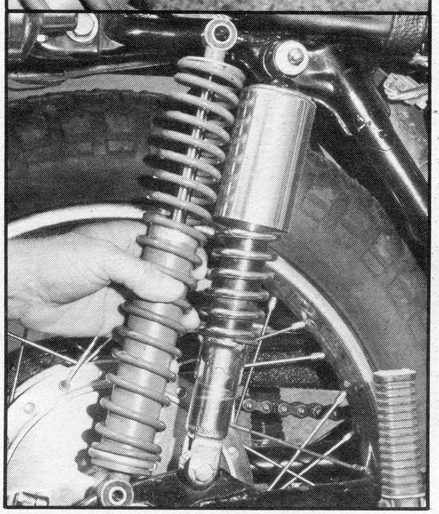
On a sharp impact, for example, the piston is accelerated down against the resistance of spring and oil. The floater valve, however, being motivated only by force of gravity, is temporarily suspended in its normal position near the top of the housing by the upward rush of oil from beneath as the oil is transferred from the bottom to the top side of the piston. As the bike flies in mid-air, the spring forces the piston back up near the top of its travel where it is met by the floater valve, now on its leisurely way down due to the effect of gravity and the loss of support from the oil, which has subsequently transferred through the piston to the bottom of the reservoir. Now should a series of such sudden impacts be encountered, the above cycle will be repeated upon each occasion, and the inability of the floater valve to follow the fast-moving piston keeps the floater high on the shaft, out of the piston's way, so that hydraulic damping is 50/50, and undesirable "pump-down," such as usually occurs on a series of fast



5 But if you are talking about a minimal 25-pound rider-or-bike weight increase over the norm, one of these single-coil spacer rings is merely put at the bottom of the spring to toughen-up preload, about the same as jacking-up the cam ring one notch on a conventional shock. Notice that ½-inch-longer-than-stock top mounts were necessary to position the fender higher to preclude tire bottoming. Had not the fender bracket already been bent up about an inch, one of the full inch top mounts would no doubt have been needed.

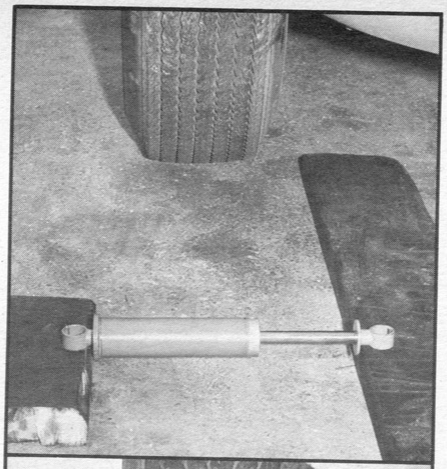


6 There it is, race fans, a hair short of a full 5 inches of yummy yummy. Common opinion of those who have experienced the Curnutt is that the faster you go, the better they ride. If it isn't true, it at least seems that way, possibly by comparison with the conventional shock, or perhaps because we are more thankful for small favors at higher speeds. The only danger we experienced was creeping overconfidence, brought on by the get-by-with-murder-ride that could suck a dazzled rider into getting so far over his head even Little Orphan Annie couldn't pull him out. Sneak up on them slowly. Remember: Newton's gone, but his law's still hangin' in there.

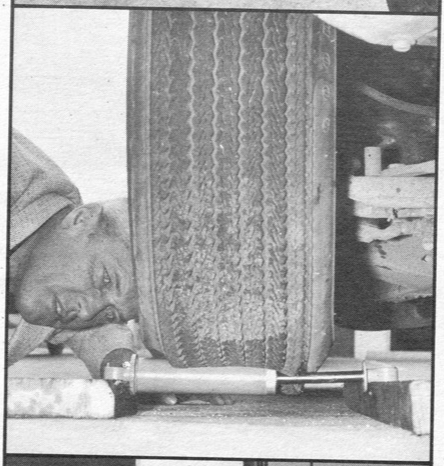


7 Just for kicks, lay a Curnutt up against a street stocker. Curnutt travel alone is half as long as the stock shock! And remember, the Curnutt can be set up for riding double if desired. But a street rider might be annoyed by the grating sound of spring against tube that is characteristic of the Curnutt, reduced only by occasional spraying of shock body with aerosol silicon or graphite types. Any bike that can accept a 13-inch-long shock (extended eye center to eye center) can handle the 5-inch Curnutt; less than that calls for his 4-inch unit. Honda and Matchless have blade-type attachment point on swing arm rather than conventional U-shaped saddle; Curnutt may custom-modify his housing bottom to fit upon special request.

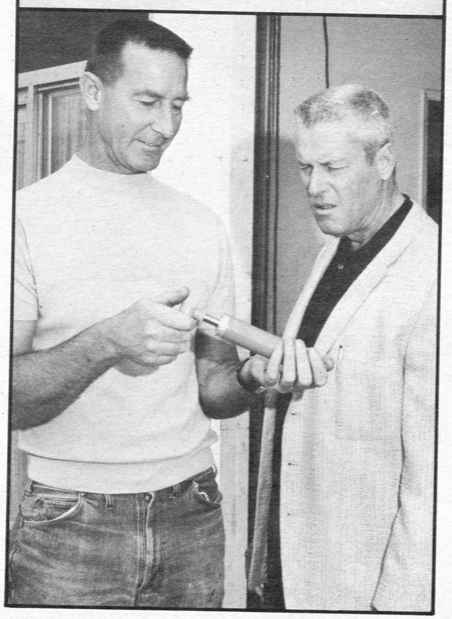
8 Brace yourself! You are about to see a demonstration that you won't believe! Chuck Curnutt is about to drive his Ford over one of his full extended 4-inch shocks, with only its eyes resting on a couple of 2 by 4's. This is the kind of a guy he is; **he** has to believe in his own product, all the way. Having been in competition all of his life, he knows the demand placed upon equipment and insists that it be up to the job when it bears his brand. OK, get a grip on yourself, the show's about to begin.



9 Oh, my aching Shock! So proud of his unit is Chuck Curnutt that he not only drives over it but sets the brake, slams the door and bounces out of the car to join in the observation. Then he leisurely continued to explain its operation for about 5 minutes before driving on over the shock, then gingerly back and forth a few times prior to releasing it for inspection. I've seen a lot of demonstrations in my life, but there's no way you could phony this one up. Now imagine how much of a hard slam this baby would take if accidentally thrown against a boulder, having looped the bike on a hill. I doubt if it would faze it.



10 "See," Chuck proudly exclaims. "There is no sign of deformation. The shock works as smoothly as it did before the test." Pardon my more-than-usual stupid look, but the old think-box wasn't ready for this. Chuck later said, "Let's see how one of the longer 5-inchers would fare. I've never given one of them the acid test and I'd like to see myself." After which he repeated the ordeal with equally incredulous and successful results. But the photographer had fainted by that time and so only the photo of the 4-incher is shown. Actually, Rick had already cut out — went away mumbling to himself. It is impressive.



dips, is not encountered. But let's say that the initial hard impact and take-off were followed by a slow, gentle landing; in this case, the floater valve will have time to follow the piston as it descends, with the more restrictive single orifice of the floater, riding close over the piston, providing heavier extension damping and thus reducing "pogo" effect that might be expected under this circumstance. One more ferrinstance and we'll leave you to your own powers of deduction: This time imagine you're running down a fast washboard road with closely-spaced undulations of about 2-inch height. In this situation the main piston rides in a relatively neutral zone barely above the center of the reservoir body, its 2-inch movement corresponding to the height of the road undulations. But here the floater valve reacts in still another of its many mysterious ways; due to the rapid fluctuation, or flutter, of the piston below it, the floater valve is held as though transfixed by the rapid hydraulic impulses at the upper limit of piston travel, keeping its distance, so to speak, and again allowing the piston to operate at maximum efficiency with unrestricted 50/50 damping.

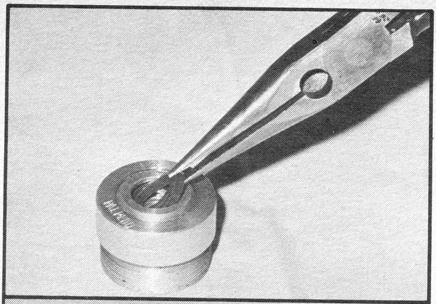
Contributing to the piston's instantaneous reaction to such rapid undulations – relating back to that neutral zone we mentioned – is the fact that the 5-inch-travel Curnutt is made to "sack," or compress 1½-2 inches under the static load of rider and machine, an impracticality with a normal length shock. On the 4-inch-travel units, this initial preload sack is limited to 1 inch. This preload ensures that the rear wheel will immediately respond downward when, due to lift-off, weight of rider and machine are temporarily removed. In other words, the wheel is loaded in such a manner that it will react to either upward force or downward submission, allowing it to more accurately follow surface contour, be it bump or pothole; ideally, it should never leave the ground. It is this abnormally long preload, permitted only by the length of the Curnutt concept and purposely built-in to ensure spring pressure in both directions, that deceives many a casual "showroom" tester. Just sitting on the bike at rest, without riding it, one is inclined to prejudge the shocks are either worn out or uselessly soft because of their immediate drop with the rider's weight. But the axle is never static when the bike is in motion, and this inherent spring sack blends indistinguishably into overall travel once in action, guaranteeing that the wheel will respond to all ir-

regularities, above or below ground level, rather than just a bump.

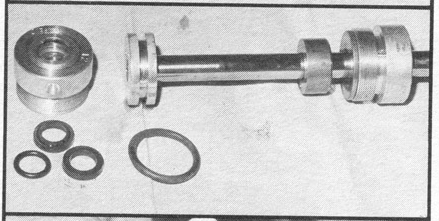
What about this big red spring that immediately tips off even the casual observer that something strange's goin' on here? Made of oil-tempered steel, it is progressively wound, with the 65-pound-rate lower coils blending into 45-pound-rate at the top. A typical break with tradition is the fact that only this one combination-rate spring (65/45) is used for all applications, whether fitted to the 4-inch-travel or 5-inch-travel Curnutt, from Norton to Hodaka. Three progressively longer versions of this spring are provided, however, for both the 4-inch and 5-inch shocks: 10¾, 11¼ and 11¾ inches for the 4-inch-travel units, and 11¾, 12¼ and 12¾ inches for the 5-inch-travel shocks. The purpose of the three selections for each shock is to accommodate increasing weight loads; while a light rider and machine might take the shortest spring, a heavier rider and/or bike could demand the middle length or longest spring. Obviously, crowding more spring into a given space increases the preload and thus the capacity to carry a heavier weight with less deflection. Each of the three spring lengths vary progressively ½-inch in length and 25 pounds in spring rate. This means that each pair of longer springs can handle a 50-pound increase in weight of rider or machine, due to the fact that two shocks per bike are used. Where lesser weight increases must be accommodated, Curnutt supplies circular ¼-inch spacer rings, each equivalent to a 12½-pound-rate increase (25 pounds per pair).

Lets see how this preloading by spring length and/or spacer ring works out. After feeding Curnutt the proper data relating to yourself and your bike, the shocks will probably be spot-on when delivered, but you can quickly verify their compatibility once installed on the machine: An initial reading is obtained when the rider, attired in full riding regalia, climbs aboard. With the 4-inch units, a static loading with the rider should compress the shock between ¾ to 1 inch; the 5-inchers should compress 1½ to 2 inches. Less than this calls for a shorter spring; more than this amount or sack indicates the need for one of the longer springs or, more likely, the placement of one or two of the ¼-inch spacer rings beneath the springs.

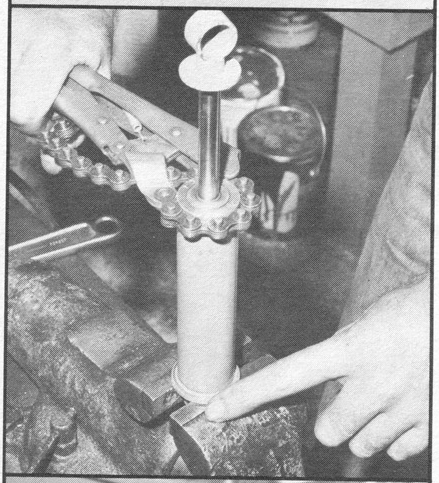
But what if, due to the longer travel and lack of a rubber bumper in the Curnutt, the tire bottoms against the fender? If tire-to-fender interference is experienced, either the fender



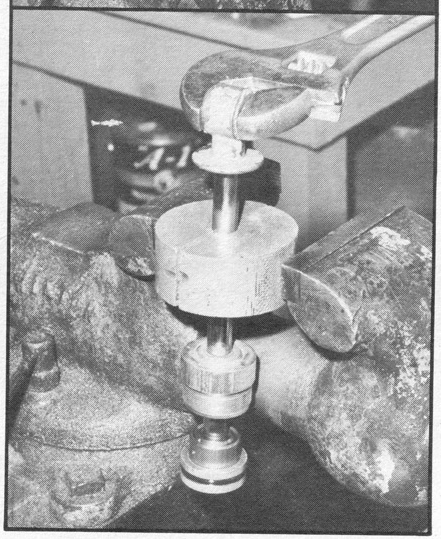
11 The simplest shock ever built, and yet one of the most sophisticated in its operation. Top seal is shown being removed with pliers prior to replacement during a rebuild operation. Seals are guaranteed for six months. I watched Chuck go through the whole rebuild bit, and it is very straightforward and simple.



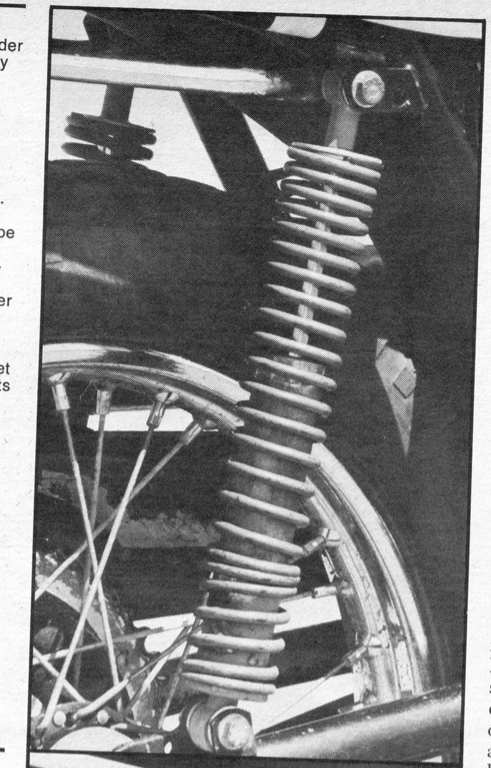
12 Here's all that's involved: two seals and two O-rings. Even the relatively small expense is accounted for by the fact that special high-quality material is used. His costs on these few items is very high. Piston and top shock mount screw off of shaft.



13 Disassembly begins by unscrewing top cap from body with Vise Grip chain wrench or similar device that will not deform the cap. Strength of brazing prevents worry of twisting off bottom mount secured in vise. All materials are American-manufactured. Fluid used is Automatic Transmission Fluid Type A. Chuck is very perceptive to individual problems, can modify unit to fit any situation — a custom job.



14 Once removed from the shock body, the top mount is unscrewed as shown, gripping the shaft in the vise with a couple of notched blocks of aluminum so that shaft will not be scratched. Don't try to memorize the operations shown here; a completely detailed set of instructions accompanies each shock, spelling each move out to the point where they all but tell you when to stop for lunch. Half an hour to an hour gets it done. No big deal. After one time through, the owner will be more attentive to shock operation and keep them in tip-top repair.



15 Unladen test Triumph now has increased fender clearance, made possible by the ½-inch-longer than shortest top mounts. But there is still an interference problem, though slight, with the adjacent brake rod on the opposite side; it works free but the rod rubs the shock body. In some instances similar interference problems can be eased or eliminated by fitting a longer lower extension rather than the top one shown here. Still another alternative, if it is only a matter of a 1/16-inch or so, would be to offset the bottom swing arm bracket a hair. Since mount grommets are flexible, alignment isn't all that critical.

16 Here's a close-up of the shock at rest but with fat daddy in the saddle. And that's a bunch. One of the conclusions that came out of the Curnutt test was the closeness and excellence of operation of the Koni units that they replaced. Although very sophisticated in design, the Konis are more conventional in exterior configuration and incur no interference or noise problems. And the effective results of operation are very close, so close that I eagerly await their adaption to my Matchless, the swing arm of which has to be modified to a saddle-, rather than a blade-type mount before it can handle conventional shock. Like the Curnutt, the Koni is super-choice but has slightly less travel. Just as in our test case, the rider was hard-pressed to readily distinguish units until after his second day on the Curnutts. It might be summarized by saying that the Curnutts, due to their longer travel, seem to be more absorptive at high speed over very bad ground. We didn't test the 4-inch Curnutts, however, a mistake we blame on time shortage. Since the Konis have 4 inches of travel also, it might have been a toss-up.

can be raised or one of Curnutt's three longer top shock mounts can be fitted in place of the short standard mount. There are four in all and they are a threaded fit onto the plunger shaft. None of the four lengths of top mounts have any effect on shock travel; the longer mounts merely hold the wheel at greater distance from the fender, making the bike sit correspondingly higher off the ground. Through this combination of variable-length top mounts, the Curnutt shock is available in lengths from 11.9 to 15.4 inches in ½-inch increments. From 11.9 to 13.4 inches, the unit has a travel of approximately 4 inches. From 13.9 to 15.4 inches, a travel of nearly 5 inches is realized. Some machines are limited to 4 inches of travel, such as the Greeves, Yamaha and Husky, although minor frame modification allows the Husky to use 5-inchers.

Another adjustment concerns the control of shock bottoming. Because of Chuck Curnutt's extensive experience in initially setting up a set of shocks based on known weight and riding characteristics, there is little likelihood of the shock itself excessively bottoming out, but should it exist, it calls for a simple replacement of the standard plunger piston with another containing minutely smaller bypass orifices. Since there are no rubber bumpers to buffer the impact of total compression, the Curnutt benefits from full plunger travel, depending strictly upon oil cushion to prevent frequent metal-to-metal bottoming. And since full travel is the goal, it is understandable that the shock may tap lightly on that rare ditch of magnum proportions, but Chuck shrugs it off with the comment that unless the spring keepers are showing evidence of deformation, or unless it is happening too frequently, no harm's being done. Either way, the piston valve can be swapped with one of increased restriction in a matter of minutes since it, too, is a screw-on.

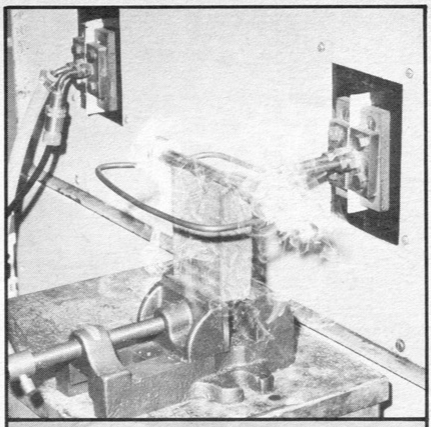
Prior to the extensive research and testing required to bring you a realistic report on the Curnutt shock, I had only been exposed to it on one occasion, when doing a similar suspension feature on Buck Smith's "Travelers" front fork. Buck's son Gene was running Travelers front and Curnutts rear on his high-flyin' desert Triumph. I sampled both suspension systems briefly but must admit to concentrating on the forks at the time. Meanwhile the Curnutts were becoming increasingly popular among the off-road runners. All but a few praised them to the skies. There was only one way to separate rumor

from fact; experience their action first-hand, take nobody's word for nothin'.

The timing was perfect. My son Steve's 1970 Triumph 650 twin, set up in an unusually rewarding compromise to handle street-legal Monday-through-Friday school-and-back work and weekend Greenhorn Enduro layout, had not really found the answer in a pair of modified Norton Girlings. Although a definite improvement over the original Triumph Girlings, they still left something to be desired in that they almost put Number One Son over the bars on several occasions and they bent beyond repair upon his first crash while ascending a nasty hill in the Jackass Enduro. We replaced them with a set of Koni shock-absorbers and S&W springs immediately thereafter and struck it rich — it was all smiles from that day on. Obviously it was going to take something radical to do him out of those Konis (I had an ulterior motive, that's Motive with a big winged "M"). His Triumph, then, would be our guinea pig for the Curnutt test.

"How much does Steve weigh?" "About 190 dressed, Chuck." "How about his Triumph?" "393 gassed, right on the nose." "Riding position?" "More sit down than stand up." With this data, Chuck Curnutt went to work assembling a set of 5-inch-travel shocks with the longest 11¾-inch spring and a couple of spacer rings each side. Except for minor brake rod interference, minimized by rotating the shock spring until the rod fell between two coils, the Curnutts popped right on. With Steve in the saddle, the shocks compressed about 1⅞ inches – perfect. Twenty hours of riding out of the ensuing two days left no doubt about the efficiency of the Curnutt shock, even though its generous travel was allowing the tire to hit the fender upon full stroke. Steve was riding at noticeably faster speed over virgin cross-country and rutted sandwashes than he had ever done before. When pressed for an opinion as to the relative merits of Curnutt vs. Koni at the end of the first day, he would hem and haw, but by the close of the second day, his mind was made up, the Curnutts were for him. Ahh, I could already picture the Konis on the back of the old Matchless Typhoon.

The following weekend found the Curnutt-equipped Triumph on stage in the Mojave once more, modified only to the extent of fitting ½-inch longer top shock mounts to provide sufficient fender clearance. The underside of the fender had been cunningly sprayed with black enamel to indicate



17 This modern induction heating unit is used to anneal (soften) the ends of the hardened plunger shaft for added strength. Softening prevents cracks due to stress at these critical points, toughening the ends, so to speak. And when you've got a boss who goes around driving over you with a Ford, you need all the help you can get. The exotic rig is also used for all brazing. Just like downtown.

18 Try as he might to keep it a secret — don't look for his ad — Curnutt is getting penetration in the field, too, as witness this pair seen on a Kawasaki in the pits at Daytona. Yes, the little 100's also benefit from the unparalleled travel; many of the Hodakas running out of the club to which I belong have them bolted on their tails and every week we big-bore boys have to have our ears pounded while they extol the virtues of their high-steppin' trail monsters. For what it's worth, there's not a dissenter in the bunch. Judging from the tall top mounts on this bike, the 100 Kawasaki has a clearance problem when changing over.

19 Obviously no amount of preload can keep a wheel on the ground when the bike is 2 feet in the air, but you can see that the Curnutt is trying, for the wheel is already extended and ready for the next impact. They can be made to fit the Husky merely by cutting down the lower shock mount bracket on the bike's swing arm. Same 45/65 spring, except in different lengths, is used on all bikes. The Sachs and Penton require the long bottom extension to clear the swing arm. If the Curnutt bottoms, preload is too light; if it tops, preload is too much, indicating need for adjustment based on rider style or all-up weight.

20 This electric-drive camera sequence of the test Triumph, equipped with 5-inch Curnutts and Travelers front forks, shows the shocks in actual operation over a long series of undulations. The sequence wraps around to the bottom of the following page. At this point, the bike has just about settled from the previous landing. Notice that maximum absorption at the rear is keeping the front end very light.

21 Still going in, the forgiving rear end is just about settled out and the front tire is barely in contact with the road even now. The Travelers front fork, boasting a full 8 inches of travel, is set up on the stiff side, allowing the front end to tap and lift, cocking the front of the bike and passing the buck to the back on all but the bad ones. The combination worked very well together.

22 But the Travelers didn't get a free ride all the time, as can be seen here where they are better than half used upon entering the next dip at speed. Before they got a chance to go the route, however, the Curnutts had already shared their responsibility and were beginning to really go to work. Notice how much space still exists between rear tire and fender. Their salvation is their long duration.

even the slightest hint of tire-to-fender contact. Two more full days of riding. This time, not a sign of fender interference. Did the shocks themselves bottom, now that they were free to go the route? As predicted by Chuck Curnutt, only rarely did they tap out light protest of full compression, and only on the surprise big ditch at moderately fast speed; on a series of big chops, they refused to bottom. So speed enters into it; the faster you go, the less apt they are to bottom out. Steve's analysis of their action coincided with mine: the wheel actually does hang down, or follow the ground, when going over a series of undulations, allowing the wheel to go crazy while the saddle rides amazingly level, a seat-of-the-pants conclusion that was verified time and again from alongside observation on a following machine. "Well, what's the verdict, Steve?" "Man, they're the livin' end! You know that series of surprise whoop-de-doos back in that long sandwash? Where I was runnin' about 50? I'da gone right over the bars if I'd hit that with my stock rear shocks!" "That's all I got to hear, Steve."

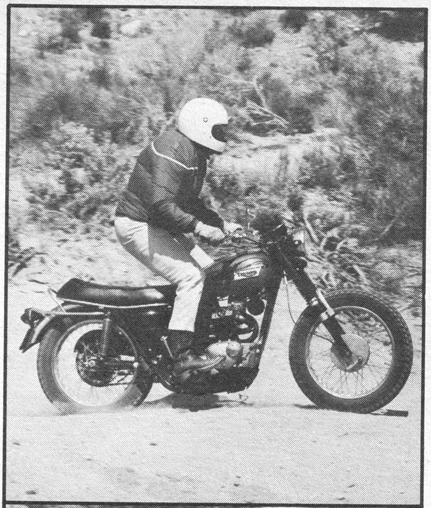
Then there was merit in the two typical stories Chuck Curnutt had related regarding the advantages of his shock: One dealt with a novice who was unable to finish a run. His first finish came in the Barstow-to-Vegas grind, after switching to Curnutts. Immediately after that he won a Novice Open hare and hound. Chuck tells of another novice who was running around 150th in the desert until he bolted on a pair of 5-inchers. His first time out he moved up to the 60's and he's now in the first ten. Just watching the sudden improvement in my son's progress told me that it could happen – it was happening, right before my eyes. Instead of looking back, to see where he was, I now found myself straining to pick out a little dust cloud up ahead. In a few words, the Curnutts' longer travel and inability to coil-bind permits the rear of the bike to compress and compress and compress upon hitting a bad ditch; it is still compressing until the tire clears the rise on the far side, and so there is no kick-up to initiate the dreaded "endo." The shock seems to have the capacity to compress longer than the bump can endure – it's that basic.

But because of their length, would they not bend easier if one were to fall? Good logic, but Chuck likes to answer that question by placing his 5-inch shock, fully extended, with only its eyes resting on 2-by-4's, and running over it – right through the middle – with his Ford Mustang! My

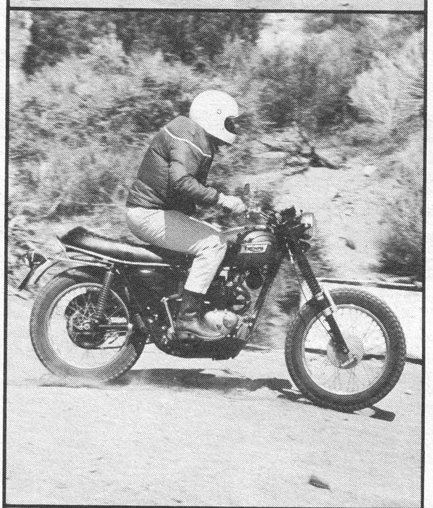
pleas of "Don't do it, Chuck, don't wreck a shock just for my benefit" were met by a smile and a fat tire poised on shock and extended shaft for about 5 minutes. Although a few thousandths sag were evident when the car was atop it, the shaft immediately snapped to its normal dead-straight shape when the load was removed. Just for good measure, he ran over it and back a few times for an encore. Back in hand, the shock was easily compressed and extended again, showing absolutely no sign of deformation or malfunction. I couldn't believe it. To punctuate the fete, Charles Curnutt Jr., pop's right-hand man, mentioned that on one occasion a customer brought in an original equipment shock, which shall remain nameless, extended it and bent it double as they watched. Obviously you're going to have to really strain to bend the Curnutt, for the ½-inch shaft is made of special alloy stainless, about the best money can buy. Both eyes and the body are of 4130 chrome moly. As mentioned, the top extension is threaded to the shaft. All parts are brazed with nickel silver. Very quickly one gets the idea that the $39.50 price for a pair of 4-inch Curnutts, and the $49.50 tag on the 5-inchers, is friendly, indeed.

Not to mention the fact that the units are completely rebuildable, and readjustable at home with a pair of Vise Grips or chain wrench plus a two-piece shaft die which the owner can easily construct by notching a couple blocks of aluminum. You may purchase all the parts necessary to rebuild the pair (O-rings, packing seals and wipers) for $5 or, if you don't like to chip your manicure, you may send them in and Chuck will do the deed for $3 extra (it's not that complicated). As if their operation and strength weren't enough, the Curnutts are one of the few shocks that are completely and quickly rebuildable by the owner, a big attraction to active riders.

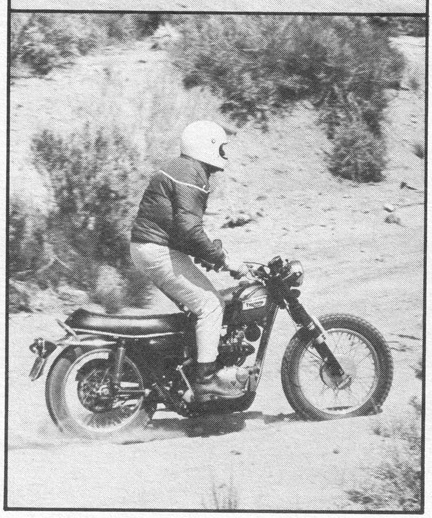
Now you have the real inside story on this wonder shock that became popular overnight, 18 years later. It is, admittedly, more noisy than a conventional unit, and it will give off an occasional "klunk" when ridden slowly over small irregularities due to the fact that no rubber bumper is employed. Some riders jokingly refer to them as "kerklunks." It takes all kinds to make a world. But Curnutt's shock is the only one of its kind, it does work to the extent that many riders openly credit much of their success to its ability to withstand crashing impacts at great speeds. It just may keep your head out of the spokes the next time you do something foolish. •



23 Whammo! The Curnutts go home, but not with a bang. Careful examination of this particular photo reveals that although the tire is buried in the fender, and the Curnutt has obviously taken all it's going to stand, that the spring coils are not closed up. Close, yes, but not closed, or coil-bound, as we say. The brunt of the impact is taken by oil damping and therefore the spring still has life left, isn't overstressed.



24 Coming out of the hole, both ends — or should we say all three ends — recuperate, with front and rear wheels reaching out to maintain their contact with terra firma. Would have liked to been a little more spectacular but a rib separation left over from this same book's 360cc Enduro test kept the antics down to cool level, all the more sharpening our appreciation for the cushy things in life.



25 And as the big TR-6 dips slowly in the west, we commend Charles R. Curnutt for his pioneer work in the motorcycle suspension field — a lifetime dream fulfilled. Here again, although shock appears bottomed out, it's still taking a little, as evidenced by the fact that the rear tire has not yet begun to show usual sign of flattening out. Final stages of compression are slow but of longer duration than bump. Any questions?