PRODUCT EVALUATION

THE SCOTT MOTORCYCLE BOOT

● THERE PROBABLY AREN'T MANY SERIOUS, long-time motorcycle riders around that haven't at least twisted an ankle, broken a couple of toes or bruised bones in their legs. Motorcycling being what it is, the odds of this happening at some time are relatively good. It seems reasonable to assume that the more chances you take, be they racing motocross or "dodging" cars on the freeway, the more likely it is you're going to get hurt.

Off-road motorcycling probably donates a higher percentage of injuries than any other facet of motorcycling. Every *Cycle* staffer in the off-road department has encountered "trauma" as a direct result of dirt riding or racing. And among these riders, each has had lower leg and/or foot-ankle injuries.

Dave Hawkins, Associate Editor, completely fractured both the tibia (shin bone) and fibula (outer, narrower bone) in his right leg. While trail riding, he plowed into a seen-too-late wooden post which had been inconspicuously planted in the middle of a sandwash. That was September 1978. Ten casts, three threaded pins and one bone graft later, his leg's nearly healed.

Chris Heiser, former mini-cycle motocross ace and up-and-coming one-twenty-fiver, suffered a severe external rotational ankle injury where his foot was rotated out in relationship to his leg.

When Scott, the ski boot and goggle company, introduced their new all-plastic motocross boots, we began speculating about how they might have reduced Dave and Chris' injuries. The people at Scott, through their experienced ski boot-developmental eyes, saw a need for something better than the standard leather motocross boot.

They worked a full year on designs before the first prototype pair was even built. After that, fifteen generations of boots were built, tried, tested and torn apart—then laid aside in favor of the next. Two years were spent doing this and collecting input from pro riders like Bob Hannah and Danny LaPorte, who were convinced of their potential and used the Scott prototypes throughout the 1978 motocross season.

There are many easily seen advantages of the Scott boots. First, plastic offers more design possibilities than leather because it can be cast into virtually any shape. Various stiffnesses of plastic can be used; it can be hard where necessary and soft where required. Appropriate plastics have greater life spans than leather. And because plastic does not soak up water, it doesn't become soft or inordinately heavy when wet. Four different types of plastic are used in Scott boots. The boots are not officially "non-flammable," which means will not burn under any circumstance. They *do* have a certain flash-point; however, if doused with gasoline and lit, they will not keep burning. When the gas burns off, the fire goes out.

The greatest single advantage these motocross boots offer over conventional leather boots is rigidity. The second is the positioning of the hinge in relationship to your ankle's true physiologic axis.

Two basic components make a Scott boot: the "lower" and "upper" sections. The lower section is die-cast as one piece and has a rubber sole grafted onto it. It's designed not to bend. Leather boots are not bend-proof; ask anyone who's landed from a jump, bottomed out the bike's suspension and had one foot curl around a footpeg like a hand around a handgrip. While obviously not indestructible, the Scott boot lowers are much stiffer than ones made out of leather—even those with steel supports.

The need for safety was the forerunner of the ski industry's evolution from leather boots to plastic. Motorcycling has finally followed suit with the Scott boot—a rigid tubular support system that not only offers greatly increased protection but is also quite comfortable.

Two pieces are joined to make the upper section: a frontal and a wraparound sides-and-back section. They're connected by aluminum rivets and secured around your foot by three ski boot-type binding fasteners. The upper section attaches to the lower via steel hinges. The tremendous advantage of the wraparound or tubular upper is its posterior support to the tibia. If your leg is supported in a tubular system that has little or no posterior support (like a leather boot), and you hit something (like a stump, another bike or a car bumper) with the anterior part of the leg, even with firm frontal support you may experience posterior buckling. You have a broken leg. The leg's calf muscle forms an envelope behind the tibia; if you support the calf muscle in back, you support the tibia too. The integrity of a tubular support system depends on posterior *and* anterior sections.

Take an average broken-in leather boot and bend it forwards or backwards. You may notice the point at which it hinges is not very close to the point at which your ankle actually pivots. If you run into something while wearing leather boots which requires that your foot bend up or down in relationship to your leg, the spot it may bend might not be at the ankle. It might bend at the leg—and we know what that means. The Scott motocross boot's "ankle" axis is close to your body's true physiologic axis. In the plastic boot, if you slam your foot into something and the ankle has to bend, it can: but only as far as the ankle would bend normally. The Scotts have built-in stops to limit the hinging action before your ankle moves too far.

Due to the tubular structure of the "upper," the rigid structure of the "lower," and the way the two are joined (by an axis that moves on only one plane), your foot cannot (at least in theory) turn in or outward in relationship to the lower leg. A certain amount of natural bending is normal—and good. Too much, however, is trouble. A slight rotation of the ankle joint may just cause a sprain. A little more can cause a fracture on one side of the ankle joint, and a little more after that may fracture both sides. If your foot keeps rotating, in addition to fracturing the ankle, the ligaments between your tibia and fibula will tear. Since the ankle bone is square shaped, as it rotates, it tends to displace the tibia and the fibula: the more it turns, the more damage is done. If the degree to which the ankle can turn is limited, you'll have less injury there but in extreme cases perhaps a spiral fracture of the tibia, which is probably less serious (although it *sounds* bad) than a joint injury.

Naturally, there is a tradeoff. But over-

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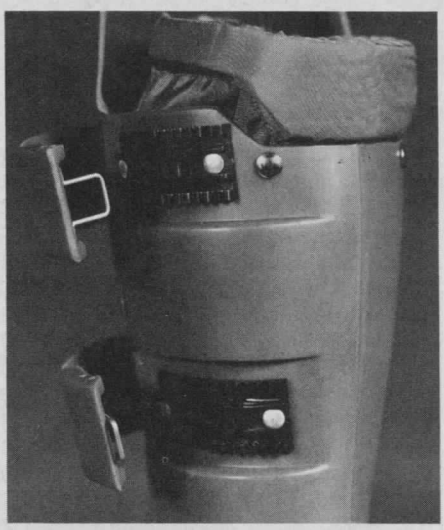
Scott Boot *Continued from page 146*

all, most people would tend to agree that mid-bone breaks are less serious than joint traumas.

Cycle's "staff" orthopaedic surgeons, Dr. M. Ronald Pizitz and Dr. Stephen J. Gomberg, think there will be less ankle and extreme tibial injuries with the Scott boots, but perhaps more, less severe knee injuries. Compound fractures (where broken bones poke through the skin), they say, are more likely to be reduced with the Scott boots because of the rigid tubular structure.

The Scott boots are unmistakably different—and take getting used to. Getting into them requires spreading the "upper" apart. Unsnap the nylon liner from the upper rear "upper" section and pull it up, stepping inside when it's fully extended.



Because the Scott boot is cast, shift-lever ridges can be added to facilitate traction in wet or dry riding.

The Scott boot's physiologic ankle joint allows freedom of forward movement without binding while riding.

Orthopaedic surgeons Dr. M. Ronald Pizitz and Dr. Stephen J. Gomberg discuss theories of biomechanics, note advantages of a tubular support system, and point out how that system relates to increased protection.

Push your foot down and settle into the boot. Then snap the liner back in place. Next, interlock the plastic "upper" shin guard components and fasten the buckles. The first few times you put on the Scotts, the procedure goes slowly. After you're used to doing it, no more time is needed than for ordinary buckle-type leather boots.

The Scott boots feel light compared to leather motocross boots. Disconcertingly so, at first. When you walk, they seem lighter still because their weight is not concentrated at the bottom, as it is in leather boots. When you sit on bike, the boots initially feel cumbersome. The brake and shift levers seem nonexistent. Because the boots' plastic is relatively dense, as you touch the bike with your feet, the boots transmit exact sensations. It's a weird feeling.

Fear Maico 501 kickstarts no more. While feeling stiff (except at the ankle pivot), the Scotts soon lend confidence. And they do allow freedom of ankle hinging never offered in a "good" leather boot. Shifting is difficult at first, and killing the engine with the rear brake is even easier than before, until you ride for a few hours. Although the boots don't soften up or break in, the inside liner foam eventually conforms to your foot, and they become quite comfortable.

The Scotts are completely waterproof. Besides keeping the outside water from getting in, they keep your sweat from getting out and evaporating. Absorbent socks are best for keeping your feet dry.

The soles of the Scott boots have a much narrower, smoother contour than do most leather boots. When you corner, the plastic boots do not tend to grab the track as much as leather boots. This alone can save you from injuries.

The Scott boots are also rebuildable. The US factory can put on new soles and do other maintenance should it be required. And too, the Scott boots should outlive leather boots. The plastics do not break down like leather, nor are there any stitching or toe plates to come adrift. The going price for leather boots is about $90.00, and the Scotts retail for $180.00.

The boots come in two shell sizes: medium (its different-sized liners handle feet in whole sizes from 7 to 10), and large (11 to 13).

Scott is encouraging the use of their plastic boots for street as well as dirt riders. They feel the new boots offer better protection than anything available before. We tend to agree; but, some street riders may get a little squeamish at the thought of wearing bright blue and red boots in "public." We're not; they're worth it.

In fact, we think these plastic boots are about the most important piece of motorcycle safety equipment to come along since the full-coverage helmet. You may never run into a wooden post or hit a car bumper or get run over in a motocross race—but if you do it's certain having as much protection as possible isn't going to hurt. ◉