

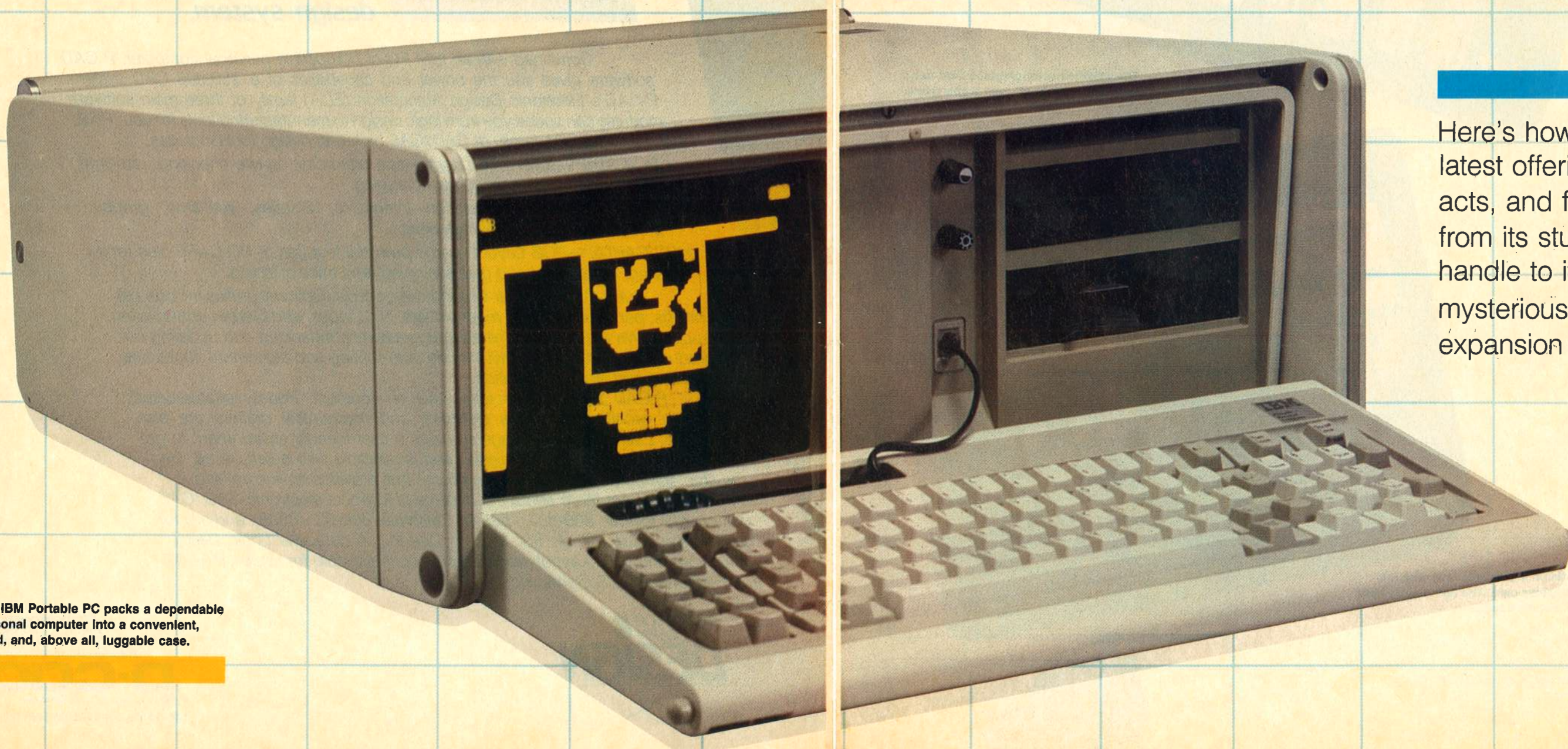
MAY 84

COVER STORY • BILL MACHRONE



Photograph: Dennis Chalkin

# Inside The PC Portable



Here's how IBM's latest offering looks, acts, and feels, from its sturdy handle to its mysterious eighth expansion slot.

The IBM Portable PC packs a dependable personal computer into a convenient, solid, and, above all, luggable case.

Nothing else out there holds a candle to the IBM's keyboard attachment design. It's truly one of those little things that means a lot.



**Y**ou can't approach a machine like the new PC Portable without some preconceptions. The IBM logo on the cardboard box sets the tone, which is reinforced by the elegant design of the case.

From the rugged handle to the sturdy locks and pivots, the suggestion is solidity, dependability. You retract the two spring-loaded catches that secure the keyboard to the front of the case and, for a change, the keyboard *doesn't* clatter to the table. Instead, it swivels down gracefully and can either be used in place or detached via the modified tilt adjusters at the rear of the keyboard. Other portable manufacturers take note: Nothing else out there holds a candle to the IBM's keyboard attachment design.

It's truly one of those little things that means a lot.

Once you've got

the keyboard folded down, you are struck by the dark orange background of the screen, a glowing portent of amber characters to come.

Just to the right of the screen is a small control panel with brightness and contrast adjustments, and the jack for the keyboard coil cord. The cord itself is telephone-style, unlike the python-sized monstrosities favored by some portable manufacturers. At the far right are two half-high disk drives, arranged horizontally instead of in the more customary (for portables) vertical position. Above the drives is a slot that will hold four or five floppy disks, just right for a weekend of computing at home. It isn't as large as the capacious cavern on a Columbia portable, but it'll do.

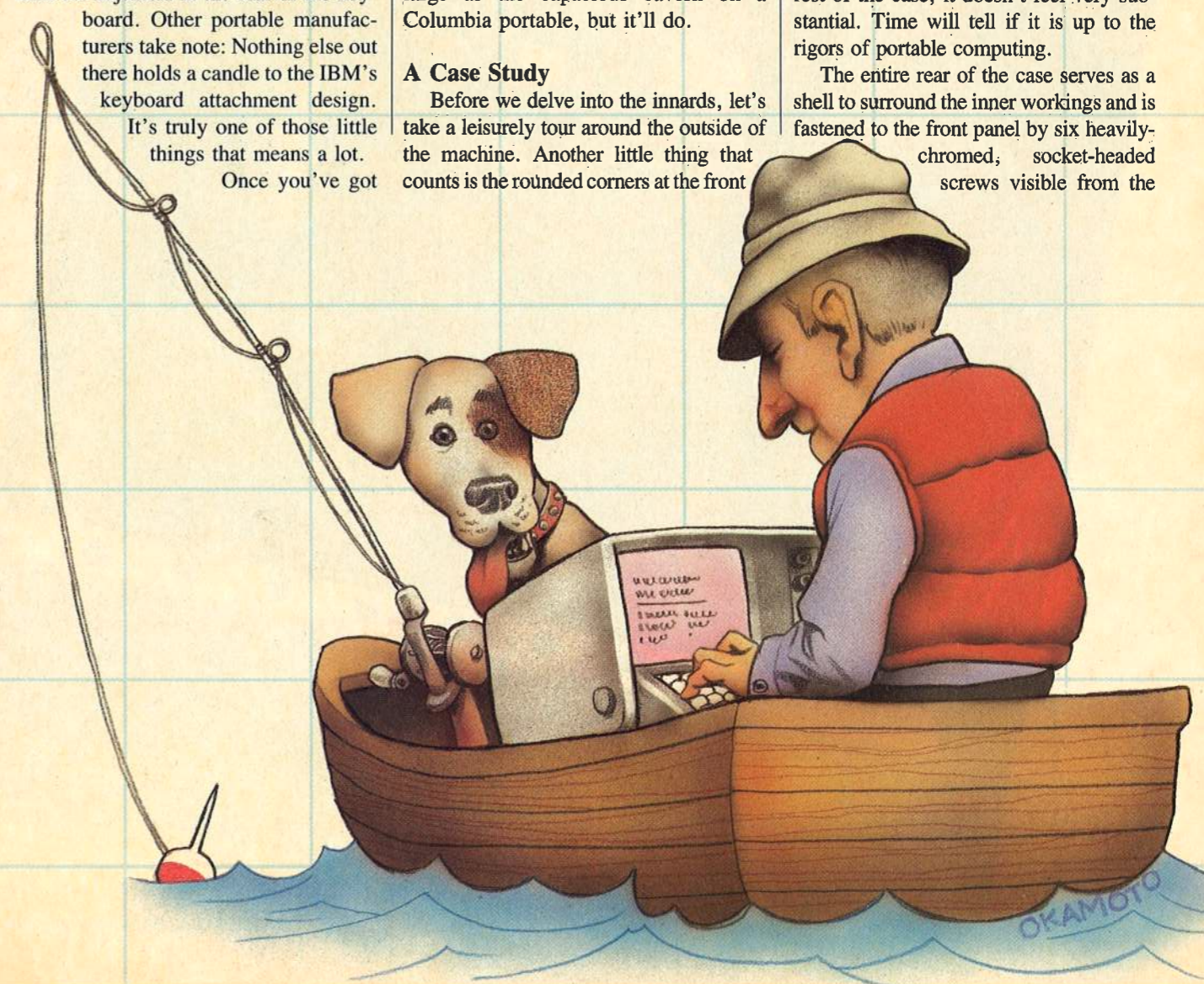
#### A Case Study

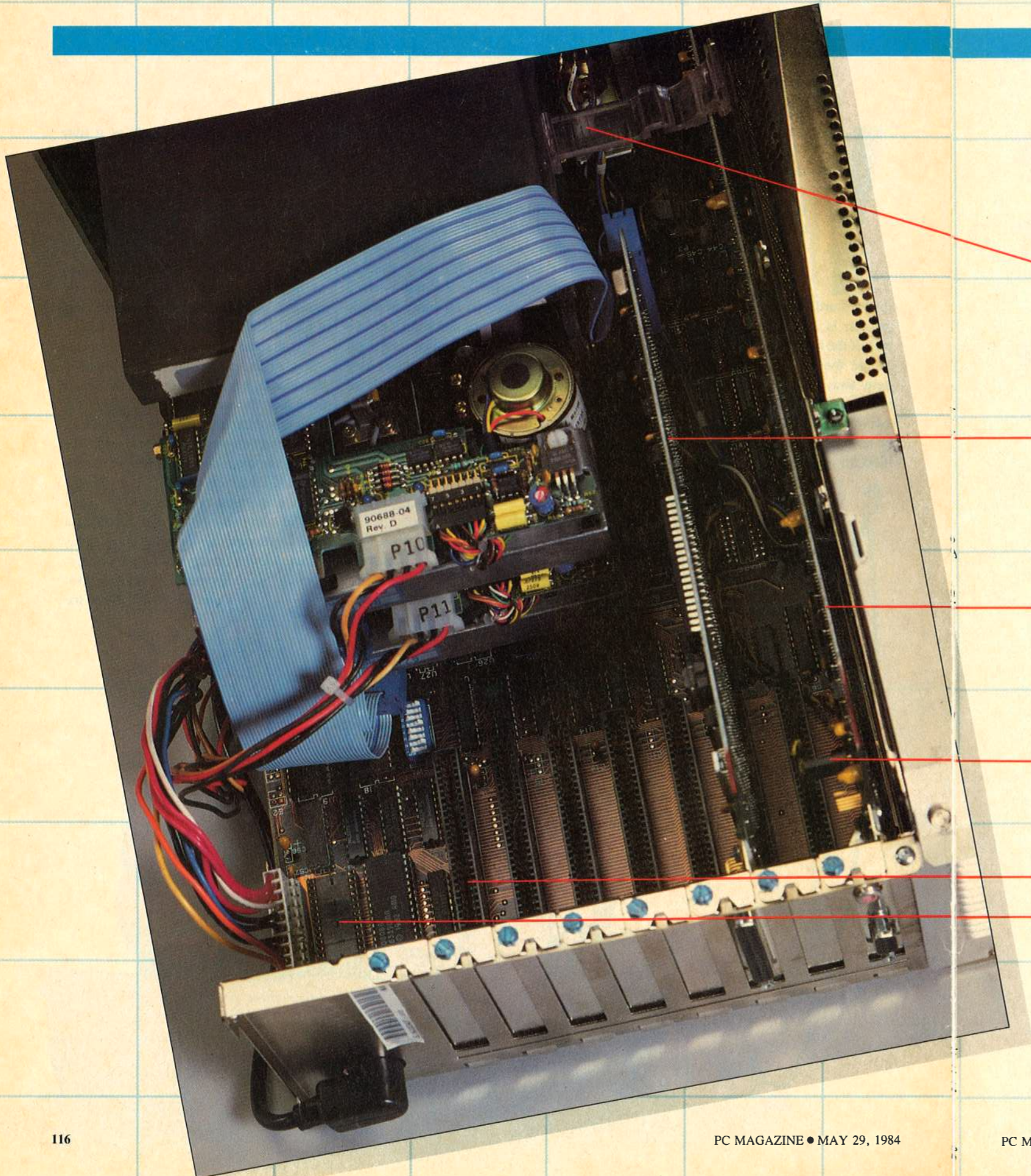
Before we delve into the innards, let's take a leisurely tour around the outside of the machine. Another little thing that counts is the rounded corners at the front

edges of the case. As simple as it may sound, they make it easy to tilt the machine from its upright carrying position to the horizontal working position. A pair of bumps on the bottom of the case tilt the machine up slightly, aiding your view of the screen. On a normal desktop, the screen points more toward your chest than to your eye level, but it's eminently usable. Portable manufacturers should add a bit of built-in tilt to the CRT.

At the rear, just below the sturdy carrying handle, is a folding panel. Hinged in the middle, it provides access to the power cord jack, power switch, and expansion slots. Like the rest of the case, it is made of beige injection-molded plastic. Unlike the rest of the case, it doesn't feel very substantial. Time will tell if it is up to the rigors of portable computing.

The entire rear of the case serves as a shell to surround the inner workings and is fastened to the front panel by six heavily-chromed, socket-headed screws visible from the





"SKYHOOK"

FLOPPY DISK CONTROLLER

COLOR/GRAPHICS ADAPTOR

COMPOSITE VIDEO CONNECTOR

USELESS EXPANSION SLOT

8087 SOCKET

front. These handsome fasteners are of the type usually secured by circlips or captive washers so they don't fall out and get lost. With that expectation in mind, I loosened them and stood the machine on end to remove the cover shell. Naturally, all six screws clattered to the Formica table top and onto the floor. So much for expectations.

My first view of the inside of the machine was a bit of a surprise, for the innards were completely covered by perforated metal panels. Unlike a Compaq, which has a certain mechanistic beauty to it, the PC Portable is an agglomeration of unlovely stampings. Plated steel covers the monitor, perhaps to minimize the effect on the CRT of magnetic fields from the disk drive motors. Aluminum covers the top of the circuit board as well as the entire bottom of the machine.

**Blue Screws**

The look of the insides is distinctly IBMlike. The subassemblies appear to have been specified at different times by engineering teams who were mad at one another. The various assemblies use many sizes and styles of fasteners, from hex-headed sheet metal screws to Torx-head fasteners. Ostensibly, the Torx and star heads are to keep you out of places where there are no "user-serviceable components." At any rate, it's a complete departure from the PC design ethic.

The real puzzle is that the screws that hold the expansion slot cover plates onto the rear panel are no longer the familiar 3/16-inch size. Nor are they the familiar 1/4-inch size. Instead, they are that handy size found on every Swiss Army knife, 7/32-inch. Why did they change? Maybe a manufacturer whose shelves are jammed with 7/32-inch nut drivers got to somebody at IBM. Fortunately, these screws are easily discerned from their more pedestrian cousins by their distinctive blue color. Isn't progress wonderful?

Not that there isn't some good engineering here. The chassis has two nylon rollers to help you ease it out of the case

shell. Other nylon bumpers prevent the color graphics adaptor from touching the metal of the video display subassembly. Power cables traverse the bottom of the machine in a clever aluminum tunnel, safe



The inside of the Portable PC is an agglomeration of unlovely stampings.

from abrasion and abuse while the case is off and impervious to radio-frequency emanations from the motherboard. Any stray RF that may have coupled onto these lines won't get past their aluminum prison. Further, the inside of the front panel is coated with conductive paint, again to block the escape of RF. The front-mounted brightness and contrast controls are backed by a small metal subpanel rather than depending on the plastic front panel for strength.

The video display is a subassembly made by Zenith Radio Corp., the same folks who bring you those nice color TVs. Their slogan—"The quality goes in before the name goes on"—is definitely true in this case. Zenith provides some of the best monitor assemblies to be found in terminals or computers. The image on the screen is sharp and readable—as readable, that is, as the color graphics character set can be.

**Forever Amber**

The Portable PC is available only with the color graphics card. The display monitor uses the composite output of the card in order to produce a monochrome image instead of the color image. To this end, the card has been modified to produce a better gray scale (or amber scale in this case). The balancing resistors that blend the red,

blue, and green color signals into the composite signals are optimized for the portable machine. Blue, which used to disappear on a monochrome representation of the color screen, is now rendered as a fuzzy, reduced-brightness image. You still don't get an underline mode. Overall, it's not perfect for text, but it's usable.

When you hook the Portable to a standard RGB monitor, the display is indistinguishable from what you get with a normal PC. Because of the rebalanced gray scale, though, performance on a color composite monitor is a little different. While our Sony Trinitron displayed an acceptable COLORBAR.BAS, the colors were dis-

tinctly whiter, giving pastels instead of fully saturated colors.

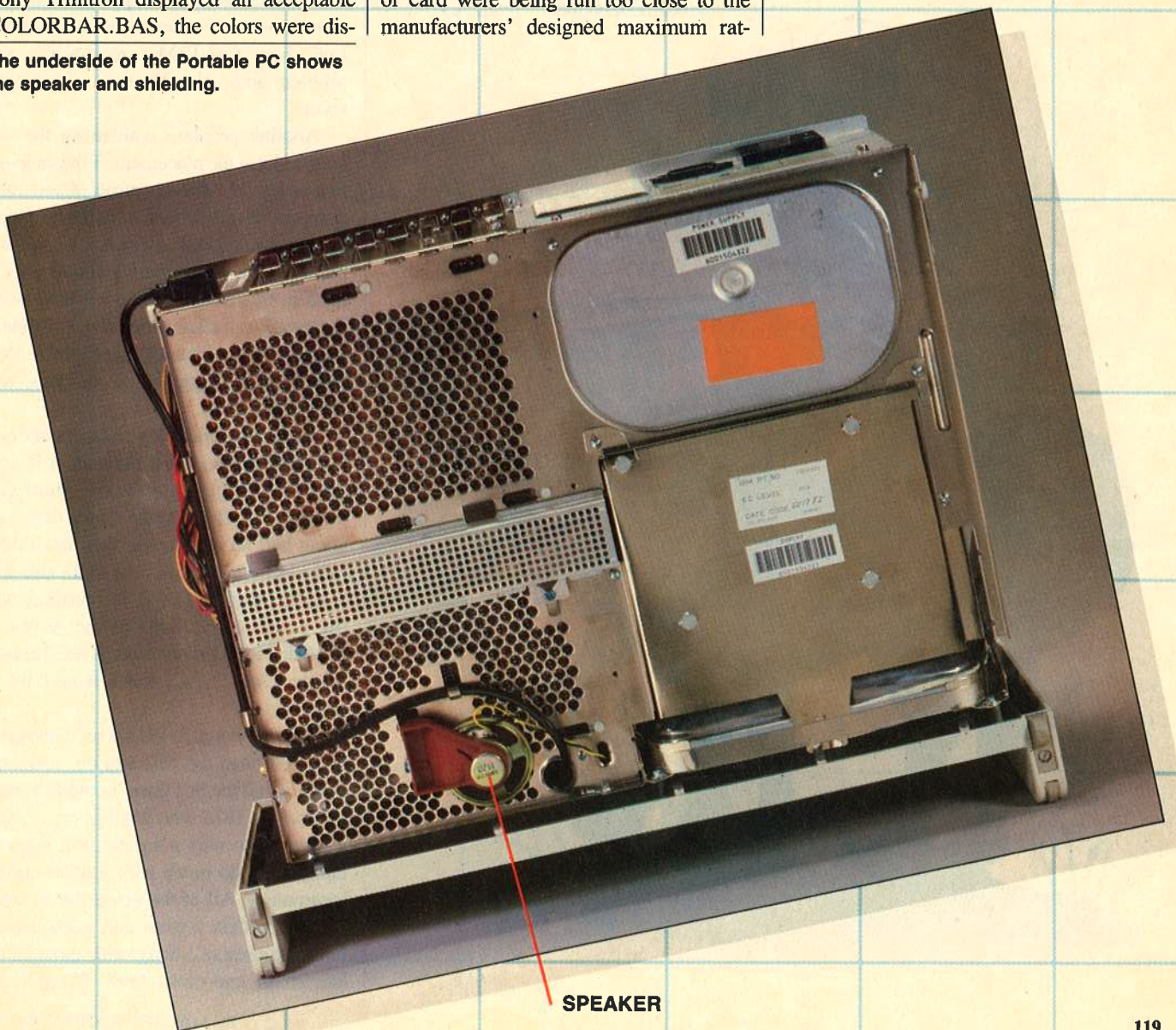
But the real reason for having the color card in this machine isn't the color, but the graphics. You can put up with the color board's lower-resolution characters when you're word processing. But the IBM mono card would have eliminated the ability to do graphics. Like the old line, "If I have one life to live, let me live it as a blonde," so the Portable PC might say, "If I have one program to run, let it be Lotus' 1-2-3."

Some of the components on the old color card were being run too close to the manufacturers' designed maximum rat-

ings. The minor changes on the new card will increase the reliability of these components. While there was no apparent problem with field failures on the old color card, we applaud any change that makes the product better or more reliable.

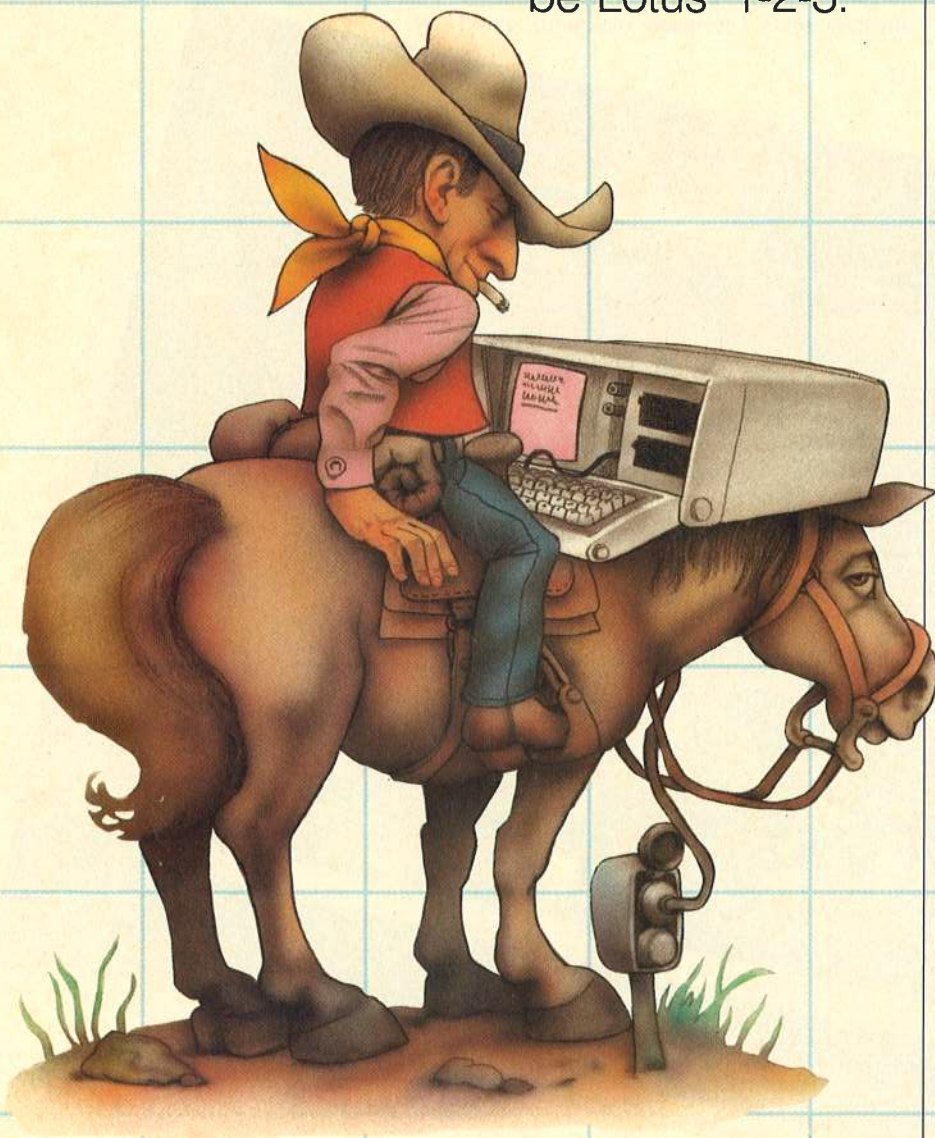
The monitor subassembly runs on standard composite video, which is derived from the Berg connector (vertical pins sticking straight out of the board) on the color adapter. This connector, nominally used for driving an RF modulator, leaves the RCA connector on the rear panel free for connection to a composite monitor but

**The underside of the Portable PC shows the speaker and shielding.**



**SPEAKER**

Like the old line, "If I have one life to live, let me live it as a blonde," so the Portable PC might say, "If I have one program to run, let it be Lotus' 1-2-3."



causes a space problem inside the machine.

### Slot Spots

The only full-length expansion slot is between the color card and the disk controller. The composite video plug stands too high off the card's component side and interferes with the next slot. And don't go thinking that you can squeeze something in there. You can't. A simple change to a right-angle connector on the composite video wire would save the day, but I doubt that many purchasers of the machine will have much taste for chopping off the old connector and soldering in a new one. Let's hope that IBM perceives this as a problem and makes the necessary change soon.

Another problem with using the full-length slot is the placement of the subpanel that holds the video controls. Cards with components at the back edge that are higher than the typical integrated circuit will probably hit the panel. I found several modem boards and even a memory board that would not clear. Since the card-retaining guide is molded into the Portable PC's front panel, there is no devious way around this one.

As for the remaining slots, numbers 4, 5, and 6 will accept a standard 5-1/4-inch mini-board, similar to the two short slots on a PC-XT. Because the Qume drives are about half an inch longer than most other half-high disk drives, you can't use a 5-1/4-inch board in slot 7; it interferes with the power connections to the drives. If IBM had used drives such as the Tandon, Shugart, or TEAC, there would be no problem.

Yes, the Portable PC has an eighth slot, one more than the XT, and no, it doesn't bring out all the bus lines. I couldn't find a soul within IBM who would even venture a guess as to why it's there, but you certainly can't do much with it in its current incarnation. All of the power lines, interrupt lines, data request and acknowledge lines are present, along with most of the handshake and clock lines. *None* of the

## There's a Surprise Inside

So you thought skyhooks were a thing of the past. Think again.

**I**BM's hot new Portable PC comes with a nifty unadvertised surprise hidden inside—a real, honest-to-goodness skyhook. We're not talking about some arching Kareem Abdul Jabbar field goal that brings the L.A. Forum crowd to its feet. Or a fearsome army helicopter that can latch onto a Greyhound bus and spiral it into the clouds.

We mean one of those old-fashioned novelties that Grandpa used to whittle out of a hickory knot, or that you bought for half a buck at the gift counter of the science museum when you were seven. They're really pretty astonishing little devices—skyhooks draw throngs of disbelieving spectators wherever they're shown.

IBM prefers to think of its Portable PC Skyhook as a retainer for long adapter boards. The one you get free with your luggage PC snugles between the CRT RF cage and the disk drives. Its sole purpose, according to IBM, is to wedge the expansion cards into rigidity. But techies know better than that.

The IBM Skyhook is an injection-molded sliver of clear plastic about 2-1/2 inches long, and shaped vaguely like the letter 'L' or a chaise lounge, depending on which way you hold it and on how mentally unstable you are. It can also look a little like the ends of corner moldings carpenters litter the floor with when finishing the ceiling. Or maybe a snug boot for a foot-bound geisha. Or maybe Italy.

But what it's really good for is transfixing observers in their tracks. Here's how it works:

You're making that big sales call, trying to impress that important client. So you snap off the cover of your Portable PC, wrench out the PC Skyhook (being

careful not to shear any capacitors off the color board in the process), and whip the belt off your trousers. (In cities like New York or San Francisco, this last step can convey other messages, so choose your situations with care.)

Then, hold the device so that the tip of

The Portable PC Skyhook is shaped like the letter "L" or a chaise lounge, depending on which way you hold it.



the boot is pointing down and slide the edge of your belt into the groove where the achilles tendon would be. Got all that? You have to make sure you're using a fat belt so it fills the groove. Depending on the weight of your buckle, you probably will want to position the belt in thirds, so that the two-thirds without the buckle hangs down from one side of the PC Skyhook, and the third with the buckle droops from the other side. As in all phases of life, balance is critical.

To see the awesome wonders of the PC Skyhook, rest the other end of the plastic (the one that resembles a crucifix) on your finger. The end with the belt dangling off of it will soar into space unsupported, magically cantilevered. It looks as if the whole works will clatter to the ground, but it doesn't. It may sway and bob a little, but that adds to the effect. If you practice, you can suspend it on the eraser of a pencil, or even on the pencil point. When every eye is on your mysterious, gravity-defying object, close the sale.

This works by playing tricks with the center of gravity, or something like that. You can't see the center of gravity, or taste it, or smell it, so scientists may be having a real laugh on us when they hand us this explanation. But it does work, and it continues to mystify everyone except the really world-wise. (One caution, however: Be sure your pants don't fall down.)

You know, it's hard to find a good skyhook nowadays. But now, thanks to IBM, every home can have one. And you get a nice carrying case for it that doubles as a computer. This really separates IBM from the so-called "PC-alikes." And at three grand, it's a steal. —Paul Somerson

data bit lines or address lines are available. So you can power the board and it can issue interrupts, but there is no way to service them due to the missing address and data lines.

IBM is evidently not strongly committed at this point to the eighth slot. Dealers who have received their "spares kits" for the Portable PC report that no system board is included and that they are to use a standard XT motherboard if replacement is required. Indeed, the Portable's system ROM identifies itself as an XT (FE hex attribute byte). I was sorely tempted to stuff a half-high hard disk and a controller into the machine and see if it would boot, but the Portable I was testing was IBM's, not mine. The board interference problem also dissuaded me. It looks like all the necessary code is in the ROM, though, so a hard disk version of this machine will be a bolt-in operation.

The power supply, at 130 watts, can certainly handle a hard disk. It also has a switch that permits 120- or 220-volt operation, a boon to international travelers. Also, the power supply is happy with either 50 Hz or 60 Hz power. Look out, Europe.

The availability of power in the machine is evidenced by the utter stability of the display as the disks are accessed, a claim that not all portables can make. The power switch follows IBM tradition by being integral with the power supply, obviating the need to run line voltages through the computer to a front-mounted switch. The positioning of the power supply locates the power on switch on the rear panel at the left corner of the machine.

#### Driven to Distraction

After a few days of use, our test machine became erratic in its ability to boot up. I got "disk boot failure" messages most of the time. Using *Readscope*, an excellent disk drive analysis program by ReadWare Systems, Inc. (Box 680, West Redding, CT 06896), I found that drive A was rotating at 275 rpm instead of the 295 to 305 considered acceptable. I

adjusted the drive, and all was fine. An hour later, it wouldn't read properly again; this time the speed was over 350 rpm. I readjusted it, but its ability to hold a speed deteriorated rapidly and finally disappeared.

I have to say that I'm disappointed that IBM selected Qume drives for use in the Portable PC and PCjr. My experience with 5¼-inch Qumes has not been good, although they make the best 8-inch drives anywhere. A pair of Qume half-highs that I had installed in my XT had difficulty holding speed adjustments over a 3-month period, and one of them shed a read-write head. Maybe bad drives come in threes, but I would be more comfortable with one of the other brands in there.

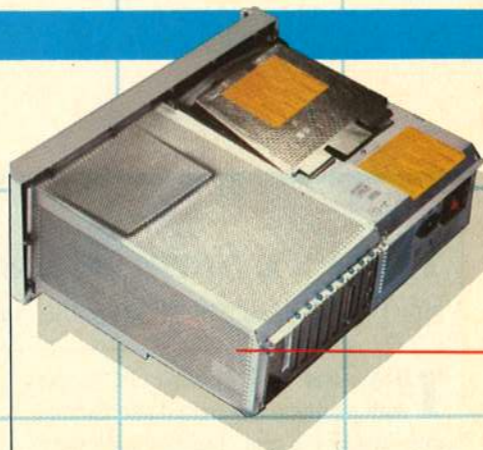
#### Portable Without Parallel

It is tremendously good news to a lot of people that they can finally buy a portable from IBM. Although no one has given up their Compaq, Eagle, or Columbia dealerships, the purchasing decisions will be easier in many a True Blue corporation. If they can get machines, that is. As of this writing (late March), the machines are just trickling into the dealerships.

The Portable PC still lacks several features that are more or less standard on its competitors. It is shipped, for instance, with no I/O—not even a parallel port. The competitors feature a parallel port and one or even two serial ports. With the short expansion slots, you can bet that companies like Tecmar will be doing a land-office business with 5¼-inch boards such as the Wave. With its parallel port, serial port, and battery-backed-up clock, what Portable PC could be considered complete without one?

In the same vein, the purveyors of short memory cards will have a field day until IBM wakes up. Half a meg really breathes life into a machine: You can buffer disk I/O, use RAM disks and still have room left over for big 1-2-3 models.

If there is a single best feature of the Portable PC, it is doubtless the keyboard. If you've read my previous lambastings of



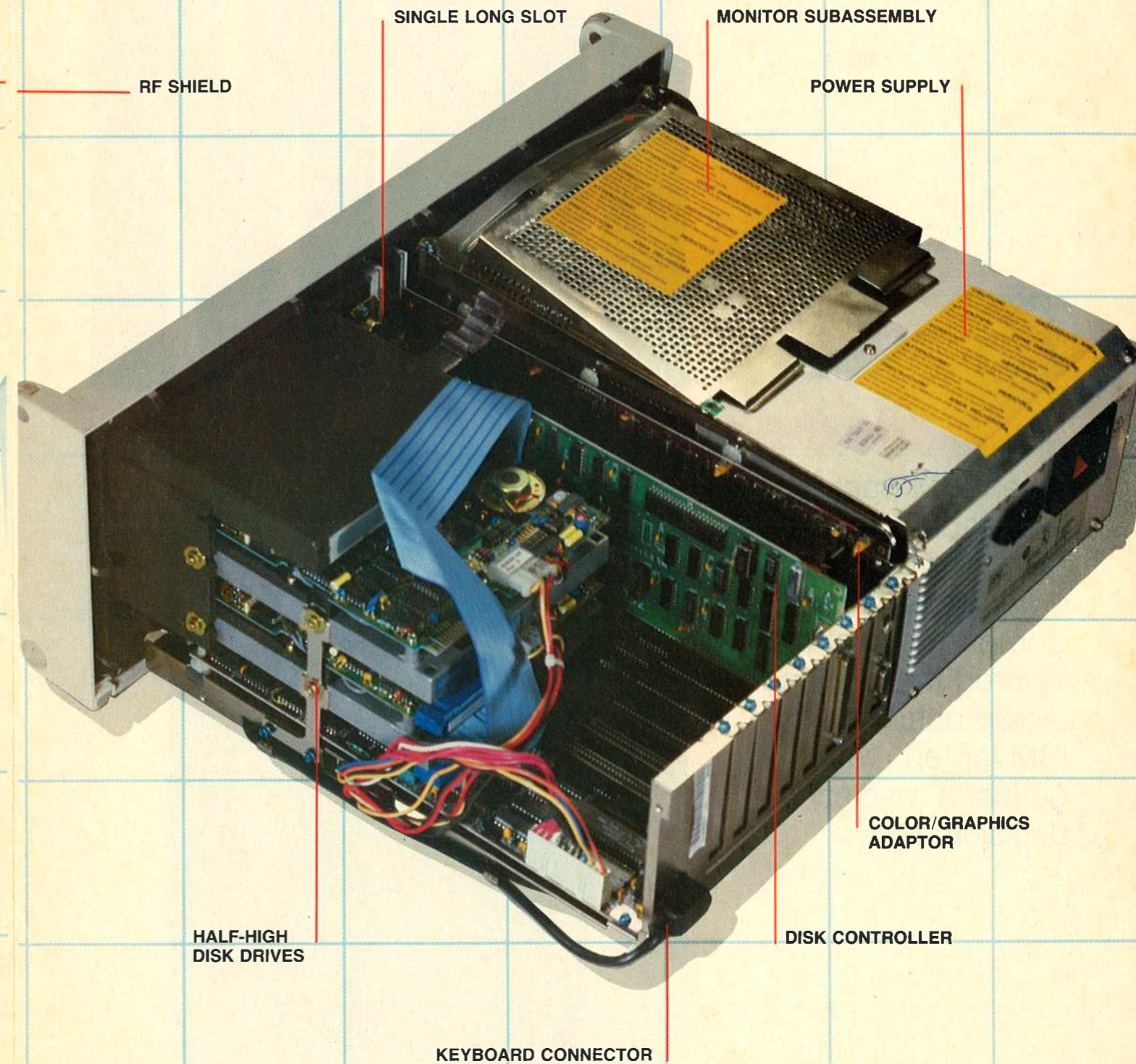
I couldn't find a soul within IBM who would even venture a guess as to why the eighth expansion slot is there.

the IBM keyboard layout, I'll give you a moment to recover. Here's the pitch: You use a PC at work and maybe a Compaq on the road or at home. You swear a blue streak every time you have to readjust to the minor differences in keyboard layout and feel. They both stink, but you can get used to anything, right? Anything, that is, but thrashing back and forth from one to the other.

Now, at last, you can gear up for one lousy keyboard and go clacking away merrily, with nary a backward glance. Sorry, IBM. Sorry, Key Tronic. But you had it coming.

Overall, though, this is a good machine. The marketplace will fill those short slots. Either IBM will fix the access problem to the long slot or someone else will fix it for them. The amber screen is handsome. The case is great. I hope for all concerned that the drives do not turn out to be a problem. We didn't spend a whole lot of time testing it to see if it was PC-compatible. After all, it *is* a PC.

Go ahead, try one out. Take Big Blue home for the weekend. It may never leave. ■



# IBM

When IBM packed a portable PC into a flight bag size box, it went after the Compaq market and ignored the demand for laptops. But an IBM laptop may be just a marketing decision away.



PC MAGAZINE • MAY 29, 1984

# Joins The Suitcase Set

IBM is the archetypal Hollywood cowboy gunslinger. One by one, competing computer companies pull into town to challenge it. "I'm faster than Big Blue," they boast, nervously adjusting their hardware on Main Street. IBM slowly turns to face the threat. An amused crowd forms along the sidelines. The upstart invariably gets off the first shot. It always just grazes Big Blue's muscular shoulders. Then, deadeye IBM draws a bead on the hapless newcomer and cuts him in half.

Why did IBM release a portable so prosaic and derivative that industry-watchers are calling it a "Compaq-alike?" Several reasons. It was becoming increasingly irked by this buzzing Houston-based gnat (only IBM can think of \$100-million-a-year Compaq as a pesky culicid). It saw these bothersome pests proliferating. And, all it had to do was reach into its storeroom of experimental machines and drag this portable out. In fact, it was a premature delivery. Word of the machine's existence had oozed onto Wall Street, and IBM felt

compelled to admit its existence before too many compatible manufacturers went belly up.

IBM is no slouch when it comes to research and development. There is undoubtedly a closet somewhere in Boca Raton or Armonk stuffed with a dozen or two prototypes just waiting for the nod from the marketing department. The Portable PC was an easy construction job. Just take one XT mother board, mix with two of IBM's uncharacteristically mediocre Qume half-height drives, make the expansion slots too small so it doesn't eat into the PC's market, and add one amber monitor and a 120/220-volt power supply for a bit of spice, and voilà. The whole thing was probably designed on someone's coffee break.

## Puny Screens

Why didn't they shake up the industry by releasing a true lap portable? IBM has a reputation for letting other companies do the pioneering and then jumping in and creaming the market once the public is clamoring for a new item. But there is no



When packed and ready to travel, the Portable PC measures only 20 x 17 x 8 inches.

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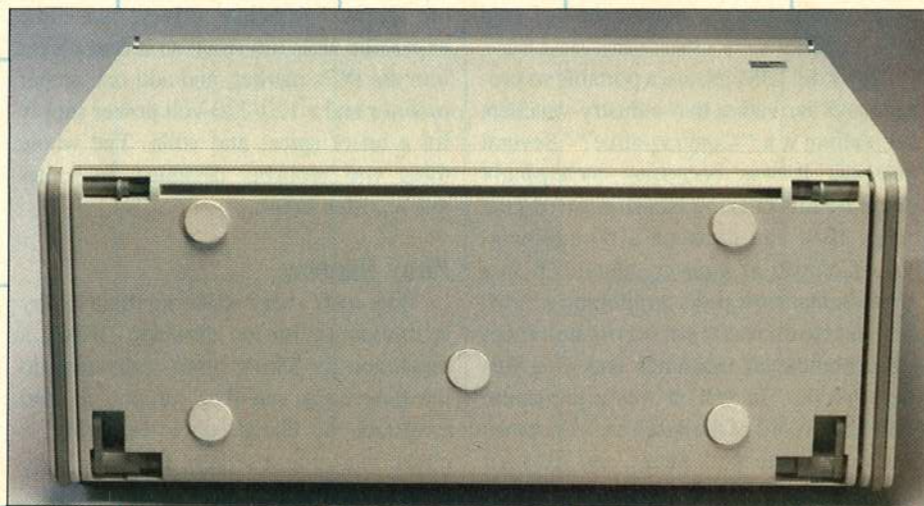




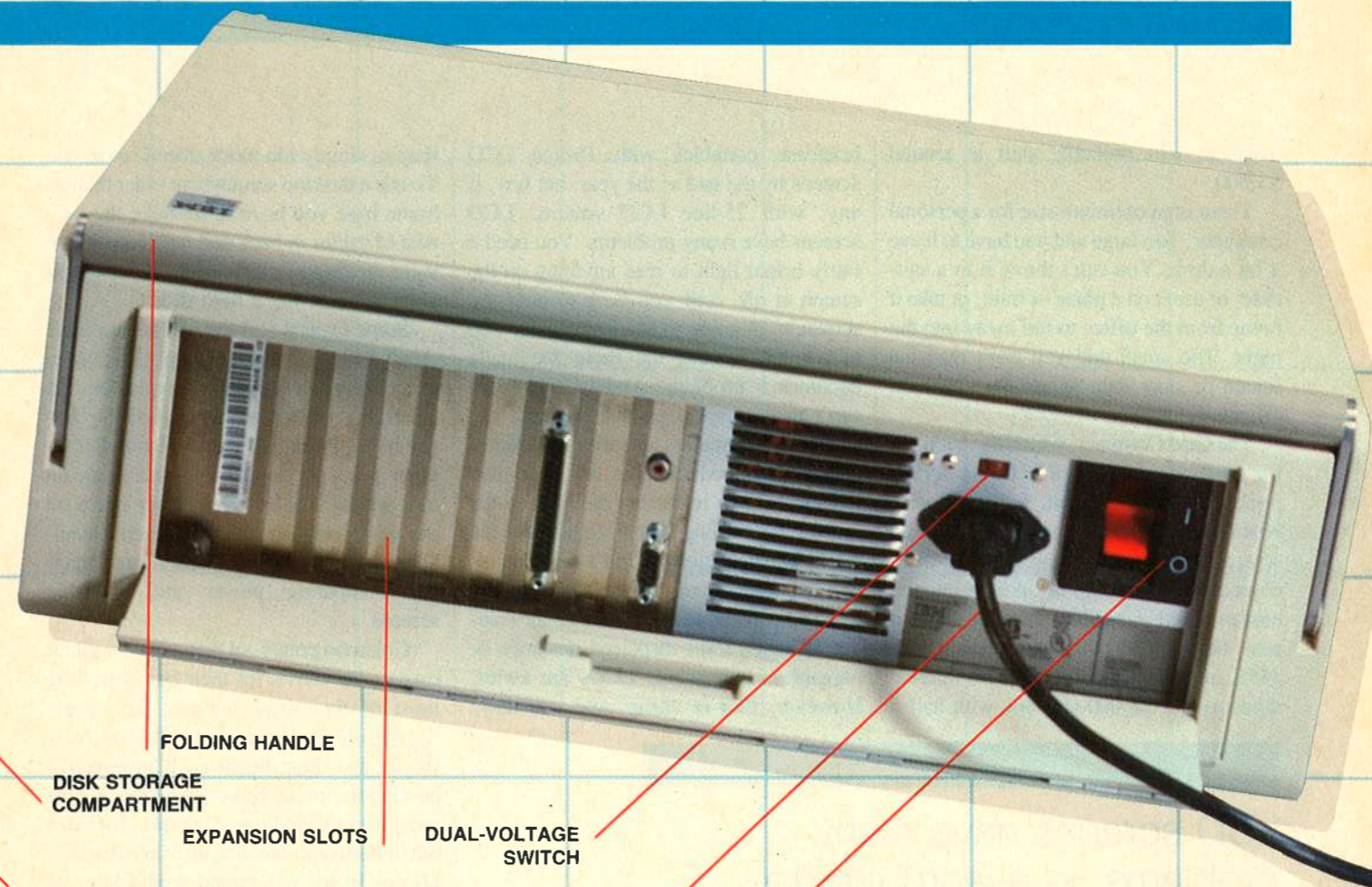
question that an IBM-compatible lap portable would be a hit. Radio Shack sold nearly 100,000 briefcase portables with a slow, pathetic screen, little memory, and non-IBM-compatible software that could best be described as modest. The market for a real PC crammed into a TRS-80 Model 100 box is enormous. Or is it?

Market researcher Future Computing has examined the portable computer industry's entrails and predicts unparalleled growth. By its reckoning, nearly a quarter of a million battery-powered computers will fly off the shelves by the end of the year. This figure will double in 1985, and catapult to 1.5 million units in 1988.

The main problem confronting portable



Ready to go: Large spring-padded plungers attach the keyboard.



- FOLDING HANDLE
- DISK STORAGE COMPARTMENT
- EXPANSION SLOTS
- DUAL-VOLTAGE SWITCH
- AC CORD
- POWER SWITCH
- HALF-HEIGHT DISK DRIVE
- SCREEN CONTROLS



Spring tension holds rear door closed for travel.

computer manufacturers is that most users want top-quality displays and disk drives, which are expensive, bulky, and power-hungry. Most notebook-sized portables on the market have puny screens, which make using them a chore, and Rube Goldberg disk arrangements (or none at all). At best, they are one step up from pocket calendars and memo books.

However, the situation is changing. Loose-lipped Compaq staffers have leaked the specs on an upcoming PC lap model that reportedly contains a megabyte of RAM and a plasma screen, and tips the scales at a scant 4 pounds. Kaypro will be marketing a notebook-sized PC-compatible manufactured by Japanese fishmonger giant Mitsui. Kyocera Corporation, manufacturer of the TRS Model 100 and the lookalike NEC 8201, is rumored to be readying a lap PC of its own. And some industry observers predict that Tandy will stuff a Model 2000 into a Model 100-sized box to join the fray. These won't be cheap, however. The Kaypro/Mitsui entry, for

instance, will probably start at around \$3,600.

There is an optimum size for a personal computer. Too large and you have to leave it on a desk. You can't throw it in a suitcase, or use it on a plane or train, or take it home from the office to toil away into the night. Too small and you can't read the screen or store data or use the keyboard efficiently.

The Grid Compass, which has been out for nearly 2 years, is close to the perfect package. It has a decent, full-travel keyboard, a gorgeous non-LCD flip-up screen, an 8086 chip (and an 8087 math coprocessor to boot), a speedy internal modem, and a bubble memory. It also costs between \$6,000 (for a version with 384K of bubble memory and no internal modem) and \$8,000 (for one with half a

briefcase portables with 16-line LCD screens by the end of the year, but few, if any, with 25-line LCD screens. LCD screens have many problems. You need a fairly bright light to read anything on the screen at all. And you have to hold the screen at an angle to see it properly. The bigger the screen, the more the angle becomes a problem. And LCD screens can't easily display graphic images.

Grid's computers use electroluminescent screens, which give off their own light instead of reflecting the light in the room. The startling difference between the clarity and precision of Grid's electroluminescent screen and anyone else's murky LCD screen is one big reason small computers haven't yet displaced desktops or luggage. In a word, LCDs are awful. However, they're cheap, and you don't

they're simply too much trouble to move. To use a desktop somewhere other than its home base you have to unsnake the rat's nest of cables in back and pack it as if you were moving nitroglycerine, especially if your machine has a hard disk.

Some experts feel the real reason there aren't more portables is simply that we're in the infancy of the micro explosion. Eri Golembo, vice-president of the New Jersey-based Prodigy Systems chain of computer stores, believes that desktops are an idea whose time has gone. They perch on our desks only because they aren't available yet in compact versions with substantial computing power and readable screens.

Golembo points out that most computer owners he knows let their hardware hog most of their desk surface. The petite Macintosh footprint is an obvious baby step in the right direction. If prospective purchasers could choose between a normal-sized PC and one a quarter of its size but otherwise identical in every respect, no one in his right mind would buy the oversized version.

The situation, says Golembo, is akin to the early days of television or stereo equipment. Back then, you bought the biggest, showiest piece of furniture you could wrap around the radio tubes. But as the electronics improved and the cabinets became sleeker and trimmer, tastes changed. Consumers began buying the tiniest components they could find. Now half the TV sets sold have handles on top, even though most purchasers never budge their sets an inch. And thousands of Walkman owners are buying little amplifiers and speakers to hook their portable stereos up semi-permanently.

Most computers are far from portable, and users adapt their work habits to this constraint. Golembo feels that users will learn to take advantage of portability as hardware becomes smaller and easier to heft. It's hard enough to take a transportable home for the weekend; with a PC or an XT it's a major headache. But when all you have to do is slip something the size of

LCD screens have many problems. In a word they're awful. However, they're also cheap and use very little power.

meg of bubble and a 300/1200 baud modem inside), and doesn't work unless you plug it into the wall or a meagre 1-hour battery pack.

Grid vice-president Alan Lefkof told PC that while he expected IBM to release its portable when it did and in the announced configuration, he was surprised that it was so heavy. One of the most-often-heard complaints about the Compaq-alikes is that they're too hard to transport. Lefkof thought IBM would find a way to make it lighter and smaller. He did admit, however, that IBM had done a very nice job of allowing international users to switch to a 220-volt power source.

Lefkof thinks we'll see quite a few

need much power to run them.

#### **Anchors Aweigh**

But wait just a second. While it's true that some users need to carry their computers with them on business trips, or schlep them along on their daily commutes, or move them from one office to another, most do not. The majority of users have one desk, which they plop their PC permanently on top of (next to their phone and their Rolodex and their manuals and their files), and use the whole area as a workstation.

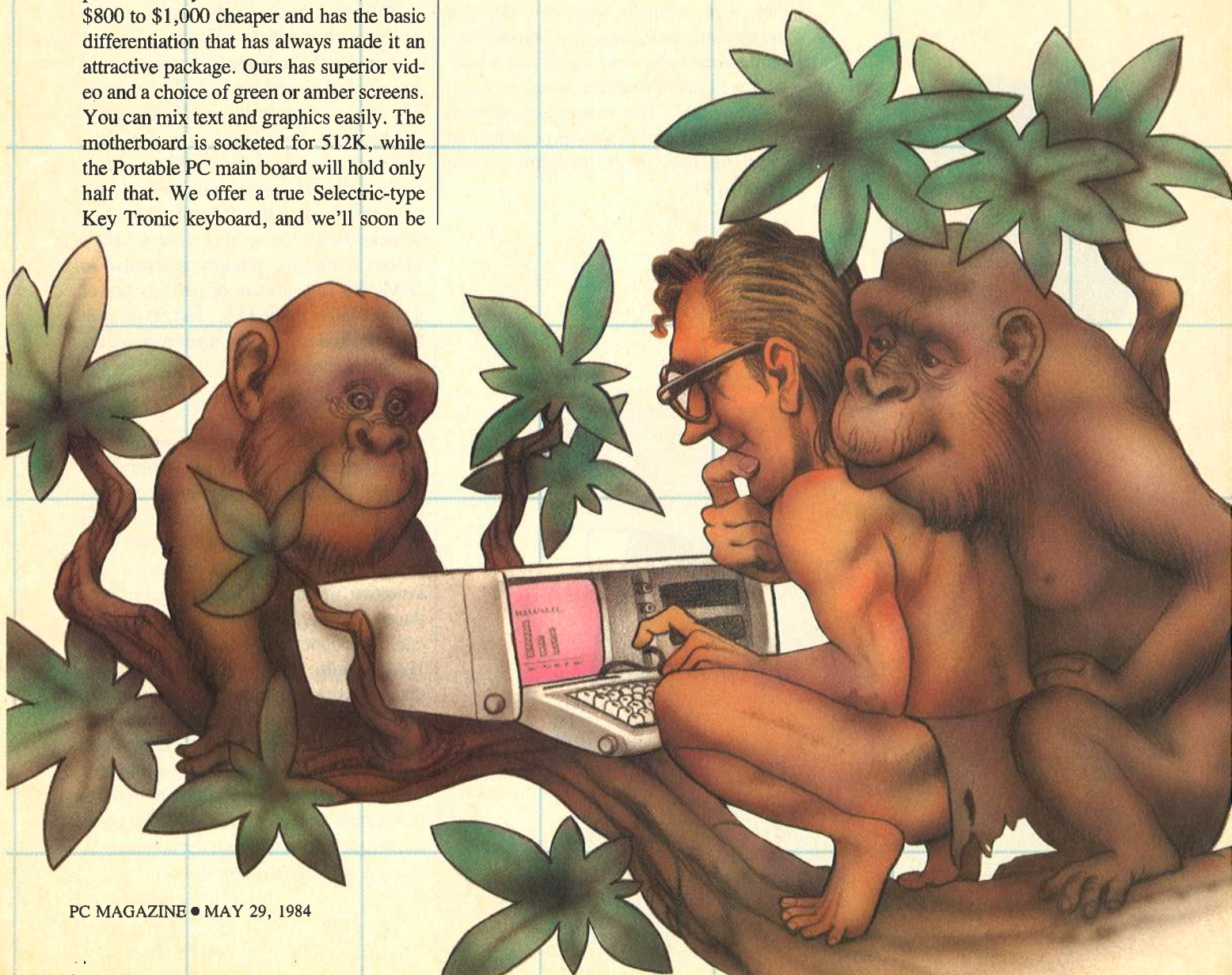
The real question is whether computers are generally anchored to desks because there is no real need to move them, or whether they're planted there because

a fat notebook into your briefcase, increasing numbers of users will take them wherever they go.

### Smaller Boxes

Some industry leaders aren't intimidated by IBM's move into the market; some even embrace it. Corona Data Systems president Daniel Carter feels that "IBM's move into portability will bless the market and expand the volume of sales for everyone." Carter's theory is that while IBM has now legitimized portables, buyers will soon see that the Boca Raton entry is not the best value: "If you compare it side by side to the Corona, ours is \$800 to \$1,000 cheaper and has the basic differentiation that has always made it an attractive package. Ours has superior video and a choice of green or amber screens. You can mix text and graphics easily. The motherboard is socketed for 512K, while the Portable PC main board will hold only half that. We offer a true Selectric-type Key Tronic keyboard, and we'll soon be

Some industry leaders  
are not intimidated by  
IBM's move into the market.  
Some even embrace it.



second-sourcing another. Ours comes bundled with top-quality software; IBM's is totally unbundled. Parallel and serial ports are standard on the Corona; the Portable PC doesn't come with either. And the box is smaller than IBM's."

Carter isn't at all worried. "We were surprised that the IBM portable was such a ho-hum product. We expected something a little more modern and flashy. And since we use a totally different distribution channel from IBM, we won't be competing with their portable directly." Carter doesn't seem to be overly concerned about

the expected profusion of lap computers either. "They're going to be fine as notetakers. But it will be hard to give them all the features of a real portable. One of the most limiting problems will be lack of expandability. How will anyone be able to put in add-on cards, for instance?"

Carter also notes that companies such as Corona currently have all the facilities in place to produce portables in large numbers. IBM's initial outlay to its dealers is said to be one or two per store per month at the outset, with conditions not expected to improve for half a year or so.

Compaq's Ken Price is not much worried either: "The features of the PC Portable don't compare with the features of even the original Compaq, which has been on the market for over a year and a half. And we couldn't believe it had no hard-disk support." This is surprising indeed, considering that Compaq expects half its 1984 sales to be for the hard-disk-sporting Compaq Plus.

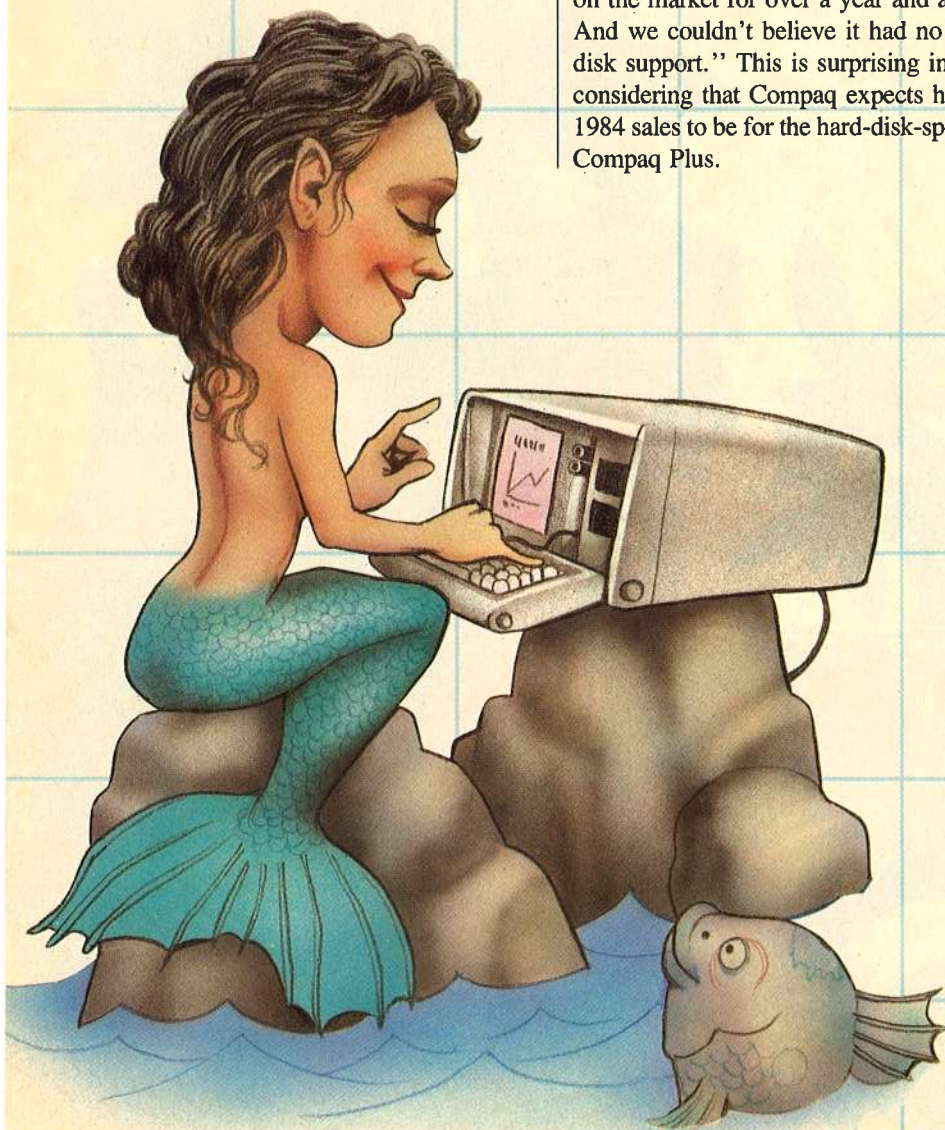
What most retail chains want to do is lessen their dependency on IBM. The stores don't want to become just IBM shops.

Compaq wasn't caught napping. Price explains that "like everyone else, we expected IBM to release a portable, and we planned accordingly. And like everyone else, we thought it would be more of a product than it turned out to be." In fact, Price sounds downright delighted. "From the reports in the press, dealers won't have any easy time getting Portable PCs. And dealers always like to have a second alternative. We're the primary alternative to IBM. We're confident of our network of 1,100 dealers in the U.S., and 50 or so in Canada, and can supply them with all the machines they need."

### Non-Blue World

The IBM introduction was also music to the ears of Gavilan's CEO Manny Fernandez: "I think it's a significant entry to the portable world. It's another indication of the important role portability will play in the future of computing. Sure it's a conservative machine; IBM has never produced anything truly innovative. But you can't discount the Portable PC; it gives IBM breadth. The most important thing about the machine is the IBM name on its case." One reason Fernandez seems so upbeat about the Portable PC is that it does not compete with his truly lap-sized Gavilans. The other reason is that he reports he's sitting on top of over \$100 million in backlogged orders, which the company is starting to fulfill in earnest.

PC MAGAZINE • MAY 29, 1984





**Pumping portables:** With portable computers, getting more for your money is not always an advantage: Hyperion, 22 pounds; IBM, 30 pounds; Columbia, 32 pounds; Eagle, 32.5 pounds; Compaq, 33 pounds.

Ron Petersen, vice-president for product planning at Eagle Computer, Inc., adds his voice to the chorus: "IBM's new addition didn't break any new ground and could best be described as bland." He does feel that while the Portable PC is priced aggressively, "it will not have much impact on Eagle. We have carried a broadbased product line so a company like IBM can't come in with one machine and eliminate us from the market."

Petersen mentions an even more important issue. "Where is the mentality of computer retailers today? Their major concern is that IBM represents too much out of every dollar they take in, perhaps 80-plus cents out of that dollar. What most retail chains desperately want to do is lessen their dependency on IBM. The IBM product line keeps growing, and computer stores don't want to become just IBM shops. What makes stores especially angry is that IBM has been announcing really interesting new products—like the 3270 or the XT/370—that it has been

keeping for its own National Marketing Division. Maybe they'll let retailers sell it, but only after their own salespeople have a crack at it. Because they want to lessen that dependency, most large computer retailers are actively courting Eagle and other large microcomputer manufacturers. The world will never be totally blue.

"Eagle will continue to listen to the needs of the users and the retailers and respond appropriately," Petersen adds. "The trends are in clearly different directions. One is obviously for laptop computers. These will be dedicated machines, very much like Convergent Technologies' Workslate or the TRS Model 100, but with more features. They'll have limited keyboards, mass storage, and displays, since the price has to be kept low. What drives this particular market is software. There are no standards as yet for laptops. It's really surprising that no Microsoft or Digital has come along with a laptop software standard. We'll definitely see a market for these machines that is verticalized. It will be very much like the market Hewlett Packard carved out for its line of programmable calculators."

Petersen feels the real growth area may be elsewhere. There is a big market wait-

ing for the emergence of true full-function portables—15 pounds or less—and a number of derivative products. These will probably have some sort of flat panel display, and a full function keyboard. Most importantly, they'll run the software that's out there today. "IBM is looking in this area; while IBM is not a pioneer, such a machine is a logical evolution of their product line.

"The important thing to remember," Petersen emphasizes, "is that we're currently in the definition phase, the shake-out phase. The market is maturing. Market needs are changing. The market is starting to catch up with the technology. Consumers right now are very tentative and concerned, and they equate the IBM initials with security. They know IBM isn't going to go under. However, in a year or 18 months the name Eagle and some of the other IBM competitors will mean the same thing as IBM. We'll be the survivors. People won't be worried whether the surviving non-IBM companies are going to be around to support their machines.

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CIRCLE 139 ON READER SERVICE CARD

"IBM did establish a standard and spurred a whole industry," Petersen admits. But he predicts that "IBM will yank people around one too many times in the future with its just-average machines. If Eagle has released the IBM Portable we would have been crucified. Before too long, the market will become more a consumer market where the concern is not for technological innovation, but for user-friendly performance. And there's plenty of performance in the 16-bit world; the 32-bit machines can address more memo-

The Portable PC may not be the perfect computer, but the amber monitor and the power supply are high-quality all the way.

ry, but they're not necessary to run the kinds of applications people want. At Eagle, we're especially concerned with the little things that, when added together, make users happy. As the market matures and the initial shakeout ends, people will buy computers for such features, not for the security of the IBM name."

## Out of the Closet

The Portable PC may not be the perfect computer, especially because most of the currently available third-party add-on boards won't fit inside. Its display may not be as sharp as some, but the amber monitor and the power supply are high-quality all the way. The styling isn't bad. The keyboard is the best on the market. So what if the shift is one key over—you get used to it. The action and the feel are unbeatable.

And by all accounts, there may be a hard-disk version and a svelte lap portable with three familiar initials on them before too long. All IBM has to do is take a short walk into the R&D closet.

If you don't like the prospect of lugging 30 pounds but want a portable that is guaranteed to run most IBM software, consider purchasing a PCjr. The PCjr is very small and light, and it will fit conveniently into most suitcases with room to spare. You can even buy an optional IBM traveling case for it.

Since the PCjr is designed to work with any color television set, you don't have to carry around a bulky monitor and its weighty power supply. A small adapter plugs the PCjr directly to the antenna leads. And because the keyboard can use an infrared umbilical, you can operate it from across the room. As an added fillip, you can buy an internal modem (although the one IBM currently sells runs at a lethargic 300 baud).

If you're a salesman who is on the road most of the time and has to communicate daily with the home office, using a PCjr may be a smart move. You pull into your hotel room, snap the connector onto your television set, plug the modem into the modular jack, and you're in business. You can even kick off your shoes, hop onto your bed, prop a pillow behind your head, and type away from across the room; the 40-width PCjr default screen is eminently viewable on most hotel color TVs.

In fact, if you added DMA access and a separate video buffer to the PCjr, you would get a full one-drive PC in a box less than half the normal size. It is just speculation, but IBM could turn the PCjr boards into a fairly small, powerful lap computer. It even has an external power supply, which means you could plug it into a battery pack or perhaps a cigarette lighter in a car. The only thing lacking at this point is a screen. But even there, IBM has been experimenting with plasma displays of all sizes. Who knows? There could be a true lap portable from IBM sooner than you think.