

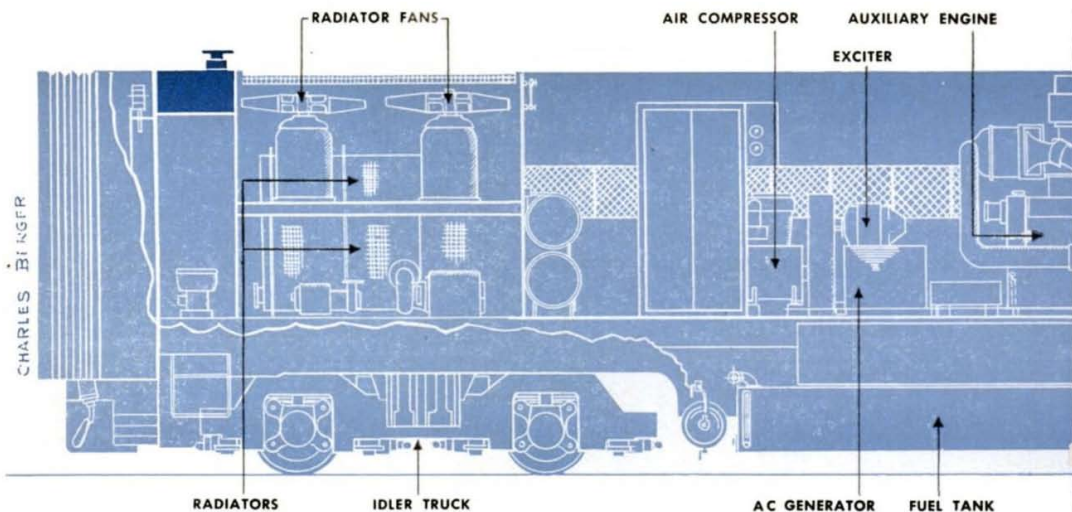
POPULAR SCIENCE

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Riding Tomorrow's Train Today

Also: New Buick—Olds—Pontiac—Cadillac



Riding the Locomotive

What it's like in the cab of the first diesel mainliner to

WITH airlines stealing away much of their Pullman business, railroads are making a big play for short- and medium-haul coach riders. The bait—and it's a mighty good one—is in the form of fast new trains. Most revolutionary of these is the New York Central's Xplorer, headed by a brand-new locomotive. This 120-m.p.h. diesel has a four-speed torque-converter transmission that's big brother to the one in your car. To see it work, come ride the cab from Cleveland to Cincinnati.

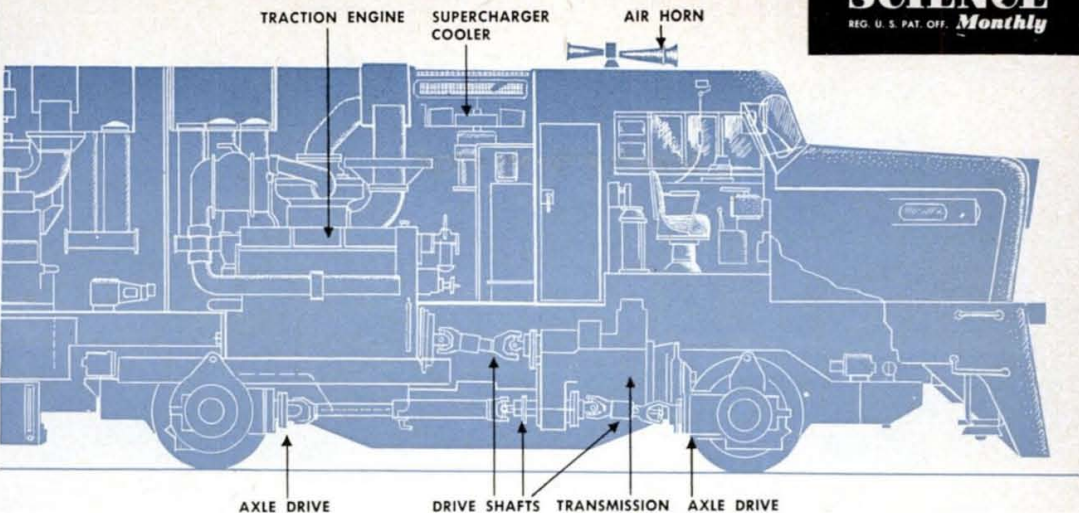
You enter the locomotive from the head coach, pass the big dual-fan radiator, and squeeze by the 570-hp. auxiliary engine, which supplies com-



Xplorer's engine is a diesel-hydraulic unit. One to run on the New Haven will have electric motors besides, for tunnel use.



Fireman's-eye view shows the auto-like cowl of the new locomotive. Its cab is almost directly over the front wheels.



That Shifts Like a Car

have a torque-converter transmission

By Harry Walton

pressed air and electricity to the entire train. The air smells of hot oil. Around you is the rolling thunder of two diesels.

With the bulkhead door shut, speech is possible in the cab, a space 10 feet wide but only half that deep. It has that look of steely austerity you expect in a locomotive. But the enginemen's seats are comfortably upholstered, and the side windows have sliding panels and wind wings.

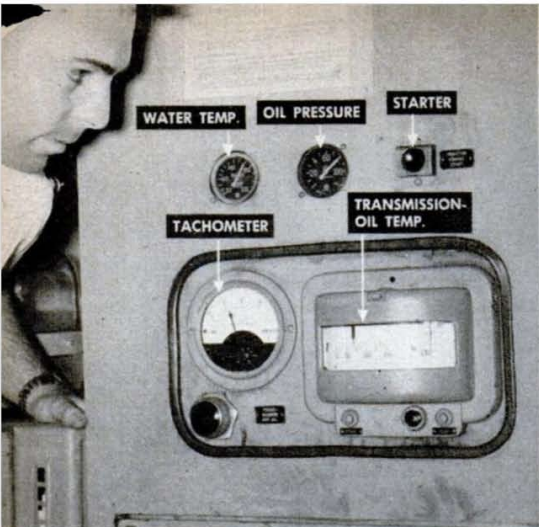
For riders there is a wooden bench with a cushion, set against the bulkhead. Tucked into a niche is a water cooler. Beside it is the instrument panel for the 1,000-horse traction engine. The tachometer quivers at 600 revs,



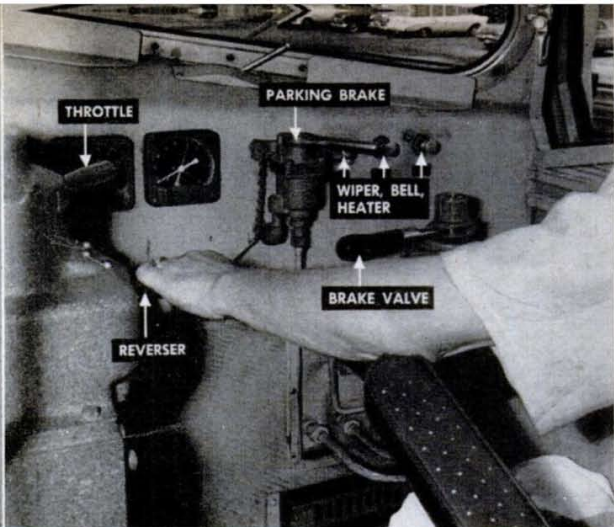
The Xplorer noses onto a truss bridge. Cleveland-Cincinnati run pits the new train against auto, bus and airline competition.



Bob Cooper, a veteran engineer with 41 years of railroad service, highballs the Xplorer on its start out of Cleveland.



James Dougherty checks traction-engine gauges. Starting instructions are taped above. A 64-volt battery powers starters.



Engineer needn't think about gear ratios. They're chosen for him by governors on driving and driven sides of transmission.

the idling speed of this 12-cylinder power plant. A beep signals departure time. Engineer Bob Cooper releases brakes, slaps the reverser forward, and pulls the throttle to the first slot.

A red bull's-eye on the control stand warns Cooper that the transmission has not yet shifted to forward low. This he has to watch; unless it does so in 10 seconds, the engine shuts down automatically. But almost at once the red winks out, the engine revs up to 1,000, and the train slides out of Cleveland terminal.

Cooper opens the throttle farther. The engine threads its way through a spiderweb of tracks. Dimly seen in the morning mist is the highway bridge over the Cuyahoga.

"Now watch," says Cooper. "The transmission will upshift at 26."

As the big speedometer edges up, there is a brief toe-stubbing sensation, a hiss from the control stand, and you roll again. You felt something like it with the early automatic car transmissions.

"It'll shift to third at 44, and into high at 70," the engineer explains.

Now the throttle is in the sixth notch, the tach at 1,500. You wait for the upshift at 44; it's quicker than the first.

Fat raindrops spatter the windshield. Fireman Don Thornton, a good-looking young fellow who wears his cap visor straight up, pulls a button to start his wiper. His Spartan dashboard has only wiper, engine bell and cab-heater buttons, plus a king-sized glove compartment stuffed with clean rags. Behind him is the hand brake.

STANDARD COACH

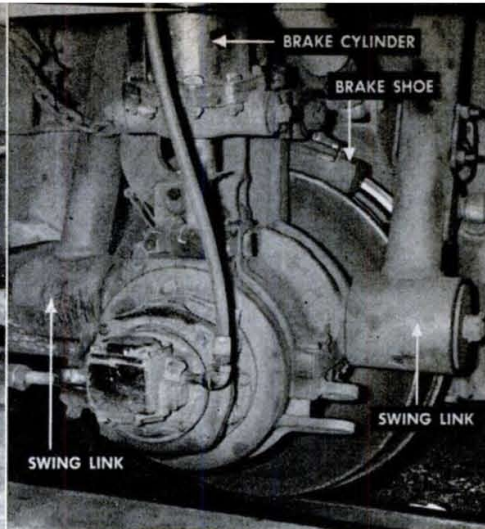
XPLORER COACH



Ordinary coaches sway out on fast turns. The Xplorer's bank right into them. You can stand or walk with less lurching.



Sleek and low, coaches are fitted with folding steps. It's only two steps down to a low-level station platform like this.



Wheel axles are pivoted so that they automatically steer around curves, enabling cars to hug the rails at high speeds.

Rough track starts the engine lurching. Wheels triphammer over switch points, but with clear track ahead the speedometer inches up, past 60 and then 65. Cooper sounds the air horn for a crossing. You're past it at 70 (the upshift into fourth is hardly noticeable) and speed is still climbing. The train leans smoothly into a long curve at 75.

"Double yellow," Thornton calls out, almost before you can spot the signal.

Throttle back to idle, the engine loses speed. At 70 it downshifts to third.

Further signals make Cooper apply the brakes. An acrid whiff as of brake lining sweeps into the cab; the shoes are composition instead of cast iron. At Boyd tower a man stands beside a yellow signal. The train is still rolling as Cooper scoops up a train order.

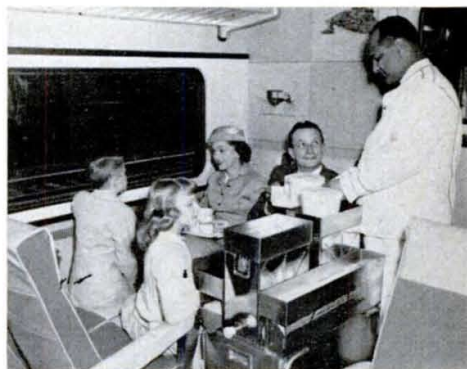
The green flimsy annuls a previous order. "They've got the westward track repaired," says Cooper. "Saves us waiting for that manifest freight."

The other train roars past before you're under way again. Cooper blasts a greeting as you glide by a section gang.

You've noticed that the air-brake lever isn't seesawed back and forth as usual. It's simply moved as far right as necessary to give the desired braking.

The cab lever energizes magnetic valves in each car, which shoot air from car reservoirs to brake cylinders. With electricity flashing the word back, brakes go on at the last coach the same instant as at the first. There's no train-line lag.

"I sure do like this new brake valve," says Cooper, whose opinion has



Refreshments are sold from a cart that goes from coach to coach. But demand is for fuller meal service.

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When you ride the train of tomorrow, you'll find . . .

- Fares are the same as in ordinary coaches, but the ride is different—smoother, more comfortable. All the bounce is in the locomotive; the cars glide.
 - There are no Pullman berths, and you cannot buy reserved seats. Seats recline to let you doze comfortably.
 - Baggage cannot be checked through. But luggage racks are lower than usual for easier loading.
 - Rest rooms show they've been planned, not crammed in as an afterthought. They're bright and roomy. The hot water is hot.
 - There is no diner. A lounge car and a traveling cart provide light refreshments, hot-platter meals.
 - Windows have no shades to struggle with. Instead, the glass is deeply tinted at the top, less so lower down.
 - It's quiet. Sealed windows, soft head-lining materials, acoustic baffles and rubber mountings insulate you from track noises. You can hear whispered conversations.
 - Cars are colorful, with plastic walls bonded to plywood. The floor is vinyl-surfaced tile.
 - It's easier to stand or walk. Coaches lean into curves instead of away from them. You sit in your seat without sliding.
 - Radiant-panel heating and air conditioning provide comfortable temperatures in any weather.
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41 years of railroad service behind it.

At Crestline a "bottom yellow"—with two reds over it—cuts speed to 20. Between 20 and 30 the engine has a rough waddling gait; on poor track, it rolls like a drunken duck.

In the Galion yards signals call for a full stop. "Got to take the running lead," Thornton says. "Number 11 must be in trouble."

The full engine roar bursts upon the cab as the bulkhead door is opened by a preoccupied young man with a shock of dark hair. He's James Dougherty, a design engineer for Baldwin-Lima-Hamilton, makers of the locomotive. Opening a hatch in the forward bulkhead, he crawls into the shark nose to check control equipment. He emerges to stay in the cab as you pick up speed on the running lead. Passing No. 11, Cooper gestures and watches the crew signal back.

"Flat wheel," he says. "They've got to set out the baggage car."

With clear signals, Cooper holds to the 79-mile limit, slowing down only for a 60-mile curve. Rain sleet down hard, almost obliterating the track despite the

frantic sweep of wipers. Louder than the storm, the air horn wails warning.

Spray flies in the windows, but it's your ankles that get wet. A four-inch fountain is spouting up from the floor. Thornton grins, helps move your bench.

Dougherty throws back two hinged floor boards. The jouncing bulk of the transmission gleams wetly beneath, a whirling drive shaft behind it. Wheel rumble is loud as he lines the floor flanges with strips of rag. When he drops the boards back, the fountain is licked. It's one of the little things designers can't foresee on a blueprint.

But the rain has let up when Cooper pinches speed down to 45 near Columbus. Picking up the train order and running around No. 11 has cost 10 minutes.

At Columbus a new crew takes over. Engineer Ralph Eisangle, a square-jawed, keen-eyed man who could play the role in a Hollywood rail epic, makes up two minutes on the single track to Cold Springs.

But the signals turn yellow again before Dayton. At low speed, the engine

[Continued on page 230]

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Coming next month: Santa Fe's Two-Story Train

Locomotive That Shifts Like a Car

[Continued from page 76]

goes into its rock-and-roll. Fireman McCourt shows you how to stand on the pitching deck—legs astraddle and knees slightly bent. It works.

A sudden loud explosion comes from under the engine, like a gunshot. "Torpedol!" the fireman says. It's a warning left by the train ahead to proceed with caution. But signals ahead cancel it.

As the air horn blares for grade crossings, your auto-conditioned viewpoint changes. Many crossings are blind and without flashers; only the horn warns motorists off the track. You resolve to have car windows open and the radio low at unprotected crossings hereafter.

Even where the train is in plain view, some drivers put on a spurt to beat it across. This trip, they all make it. One dashing soul pulls up almost on the track, then backs away. McCourt grins.

"People are funny," he says. "Even when they're walking, they'll run across in front of the engine, and then stand

on the other side to watch it go by."

Riding the cushions part of the way back, you find the reclining-seat coaches much smoother than the engine.

Each car has a single axle at one end only, and rides piggyback upon the next. With this setup, you'd expect cars to kneel down like tired camels when uncoupled. Instead, two dolly wheels come down to hold the axle-less end up.

Connecting two air lines, 42 circuits and a three-phase 440-volt power line between each two cars sounds like a yardman's nightmare. But it all happens automatically—and for good measure, the air draws up those dolly wheels.

Getting off at Cleveland, you ask Fred Kurtz, Baldwin engineer on the return run, how much fuel oil is used.

"We haul nine cars and 392 passengers," he says. "For the 520-mile round trip, we take on 500 gallons." His eyes twinkle. "How much gas would your car burn to carry the same load?" **END**
