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A tour of mechanical wonders in S.F.

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There's the pub crawl and the art crawl, but when gearheads want to let loose, San Francisco now offers the Mechanicrawl.

On Saturday only, the underground mechanical wonders of San Francisco's pre-computer era will be revealed in a tour along the waterfront.

Alexander Rose, executive director of the nonprofit Long Now Foundation, created the tour to celebrate and reveal hidden gems such as the torpedo data computer aboard the Pampanito submarine, the underwater pipe wave organ near the Golden Gate Yacht Club, and the mammoth triple-expansion steam engine aboard the Jeremiah O'Brien Liberty ship.

Burning Man artists have been invited to erect some of their handcrafted mechanical artworks on the walking path between Aquatic Park and Fort Mason, and the Exploratorium will stay open until 8 p.m. The walking tour leads visitors inside the museum to a car engine so they can visualize how differential gearing works and how pistons work.

"There are all these amazing things in San Francisco that most of us never see and touch because they are in tourist areas like Fisherman's Wharf," Rose said. "But they are really amazing, and they are right here."

Some of the nonprofit organizations that support these machines are literally dying - their members are aging - so Rose created the Mechanicrawl to energize a new era of gearheads to take over.

San Francisco, with its home base for many do-it-yourself Burning Man machinists, is a perfect place to energize a new generation of caretakers of these mechanical marvels, Rose said.

"There's this whole culture of retro, sci-fi mechanical computer enthusiasts out there," Rose said. "People are building steam engines and bringing them to Burning Man." Burning Man is the annual alternative art festival held in Nevada's Black Rock Desert.

A centerpiece of the crawl is the mechanical computer aboard the Pampanito submarine, which uses a

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set of whirring dials to calculate the precise mathematical arc needed to hit a moving target with a torpedo.

The machine, using data entered from a person looking for enemy ships through a periscope, factors in wind, current and distance to choose the perfect time to launch the torpedo.

Two lights, representing fore and aft and marked "correct solution," light up when the computer finishes doing the math. The answers are transmitted to the torpedo shafts where a pin shifts to the perfect angle inside a gyroscope to send the torpedo off in the right direction.

"In World War II, this was the highest of high tech," said volunteer docent Richard Pikelney.

"The Japanese didn't have these," he said, and it helped win the war. The computer was so reliable it was used as late as 1971.

Mechanicrawlers will be able to descend three stories into the pit of the triple-expansion steam engine inside the Jeremiah O'Brien Liberty ship.

One of only two Liberty ships left, the 8,000-ton ship still runs. It takes four hours to get up steam, and temperatures can top 100 degrees in the engine room.

Rose plans to have the engine running for Mechanicrawl.

For those who prefer dry land, the tour crosses a spit of land near the Exploratorium where an underwater pipe organ is played by waves.

At Fisherman's Wharf, tourgoers can see a mini-opium den, spar with toy boxers made of wood and metal or listen to the cackle of larger-than-life carnival puppet Laughing Sal, among 200 coin-operated, turn-of-the-century amusement games at the Musee Mecanique.

Rose will also open his doors at the Long Now Museum and Store at Fort Mason, to display the world's slowest computer - an all-binary, 8-foot-tall mechanical "orrery that tracks planetary orbits through a series of gears and pins.

The planet tracking device is a prototype for one of the displays within the "10,000 Year Clock," which Long Now is building as a monument to its central purpose: encouraging long-term solutions to global problems.

On Tuesday, employees were testing a series of hammers and Tibetan prayer bowls to get a good sound. The plan is to have the clock ring 10 bells in a different sequence each day for 10,000 years - more than 3.5 million combinations.

When finished - at least four years from now, maybe more - the clock will be placed in an artificial

cavern inside a high desert mountain in eastern Nevada as an icon of long-term thinking.

It will stand as a testament to a time when things were made by hand, things took time, and things lasted long into the future.

Just like Laughing Sal. Or a Liberty ship. Or a torpedo data computer.

If you go

The Mechanicrawl runs from 3 to 8 p.m. Saturday. Tickets are \$10 to \$15, and free to members of any participating Mechanicrawl organizations.

Map your own route and see videos of the exhibits at www.longnow.org/mechanicrawl. Secure bike parking available at Fort Mason.

For information, call (415) 561-6582.

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<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/07/10/BA1B11MDJ6.DTL>

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