



**DANCE  
FREE**

Thursday Nite  
July 10 in the Grove  
From 9 to Midnite  
to  
"SOUTHBOUND"

**Solution sought  
for turbine surge**

Turbines supply us with everything from light in our homes to jet transportation. However, they are subject to a phenomenon known as surge which can cause them to explode or disintegrate.

A number of oil companies and Howell Instruments have funded the Gas Turbine Laboratories at TAMU to develop a surge warning device that could save industry thousands of dollars.

Laboratory Director Dr. M. P. Boyce, said that "surge consists of the reversal of flow in a compressor. Instead of the air or water or whatever going in the correct direction, it goes opposite."

A compressor can surge because of dirt or vibration. This can destroy the bearings and cause unscheduled downtime of the equipment.

If the surge-caused vibration gets violent enough it could cause the turbine to throw the compressor blades and disintegrate, Boyce said. "The same problem also occurs in aircraft turbines, and the research could be applied there as well."

"The program has as its main goal the design of a surge-detection control device and a secondary goal of extending the surge-to-stall margin in these compressors, which means increasing the operational range of the compressor."

"The device will increase compressor life and reduce costly repair time while making the compressor more efficient," Boyce said.

**Student developing  
gas saving ideas**

An aerospace engineering student at TAMU is developing ways for truckers to save gas by cutting drag on tractor-trailer rigs.

Robert Milburn, a senior from San Angelo, has used the TAMU wind tunnel to find five major areas of high-drag conditions.

"Because fuel has been plentiful and inexpensive, little attention has been given to altering the shapes and performance of trucks to reduce fuel consumption," Milburn said. "Now, in order to return a profit to the operator the trucks must operate with minimum possible fuel consumption."

"At highway speeds aerodynamic drag is the major force on the truck," he said. "Before, the higher drag was overcome by more powerful engines, resulting in increases in fuel consumption. Efforts are now being made to reduce aerodynamic

drag by reshaping the truck design rather than using large engines.

"We have just finished the initial phase of wind-tunnel testing to determine where the drag could most easily be reduced," Milburn said. "Three models were tested: a conventional cab, a 'cab-over-engine,' and a conventional cab with a sleeper."

"Five areas were found that presented high drag conditions," he said. "The areas were: in front of the radiator, between the tractor and trailer, under the cab, behind the trailer and under the trailer."

"The log-drag truck of the future will have to be a streamlined body, but the immediate need is for drag-reduction devices that can be added to existing vehicles," Milburn said.

"The gap between the tractor and trailer produces a very high drag," he said. "If the gap were sealed so

that no air could enter, this problem would be eliminated. The seal could be made of canvas and could be attached by means of snaps on the trailer and tractor. This would effectively seal the gap and would still allow existing turning radii.

"At the rear of the trailer a device is needed to reduce the wake behind the vehicle," Milburn said. "This could be done by attaching a base plate a short distance behind the trailer. This device was tested in the wind tunnel by taping a bottle cap on the end of a rod and placing it behind the trailer."

"Thus, the wake is smaller and the forward flow of air behind the trailer is greatly reduced, thereby reducing the drag," he said.

"Another problem area is under the trailer," Milburn said. "One device which might reduce the drag is a flexible skirt attached under the cab extending almost to the ground. The air flowing under the cab would be forced out to the side of the truck. This would produce a low-pressure region underneath the trailer and the air would be forced back under the vehicle."

"This would improve the flow under the trailer; it would also contribute more flow into the wake behind the truck and would reduce the spillover to the sides of the trailer," he said.

**Submarine  
probe shows  
reef safe**

A TAMU submarine research team says its investigations of drilling operations near the East Flower Garden Reef off Galveston show "no evidence of mortality or damage to biota of the bank that could be attributed to drilling operations."

Dr. Thomas Bright, head of the team, said he and his associates ran a submarine transect from the crest of the reef to the edge of the bank nearest the drilling site.

"Now we've got to fill out a lot of reports and do the analyses of this material we've obtained," Bright said.

The team used the TAMU research vessel "Gyre" and the sub "Diaphus" to map oil lands on the floor and continental slope of the Texas Gulf of Mexico. The total survey included areas from Galveston to Corpus Christi.

The Bureau of Land Management contracted with TAMU scientists to map offshore fishing banks in areas offered for auction to oil companies.

The results of the cruise will be reported to the bureau for use in regulating oil and gas drilling near the banks.

The next scheduled dive for the "Diaphus" is set for Sept. 15 in the Gulf in conjunction with research for the U.S. Geological Survey.

**Bilingual  
institute set**

A group of junior and community college instructors will assemble next week at TAMU for a four-week bilingual-bicultural teaching institute.

The teachers are picked from schools with 10 per cent or more enrollment from bilingual-bicultural background.

The institute, which begins tomorrow, is geared to intense training of about 25 such instructors in specific teaching methods.

**SKAGGS ALBERTSONS DRUGS & FOODS FOOD SPECIALS**

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