VIEWPOINT

Letters for this column should be addressed to Letters to the Editor, GEAR TECHNOLOGY, P.O. Box 1426, Elk Grove Village, IL 60007. Letters submitted to this column become the property of GEAR TECHNOLOGY. Names will be withheld upon request; however, no anonymous letters will be published.

Dear Editor

If I may, at this time, I would like to commend you and your staff for putting together a very excellent gear journal for the Industry. Every time I receive an issue of "GEAR TECHNOLOGY, The Journal of Gear Manufacturing", I always recall the meeting that we had in the spring of 1983 at which time you addressed your ideas in putting forth a technical journal to the industry.

As I travel around the country visiting with many of our customers, I am finding that not only are we, as an advertiser in the Journal, meeting our advertising needs, but you are also meeting those very high ideals that you put before us during that meeting. During these discussions with our customers, it has been indicated to me that you are addressing that area of technology that has previously been neglected by all other magazines in the area of gear manufacturing.

Martin C. Woodhouse
Sales Manager
Starcut Sales, Inc.

EDITORS NOTE: It is exciting for us that the readership of GEAR TECHNOLOGY continues to grow. In addition to our large domestic list, GEAR TECHNOLOGY is now being read in thirty foreign countries and requests for foreign subscriptions continue to come in daily. Thank you for the letters of encouragement that we continue to receive.

I am extremely glad to note that a journal exclusively meant for Gear Manufacture has at last been started. I have seen the June/July 1984 issue in a friend's place and I could not get the subsequent issues in India.

At present I am working as Chief Engineer in one of the largest gear

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TABLE VI. - FATIGUE RESULTS WITH AISI 9310 STANDARD AND SHOT-PEENED TEST GEARS

Gears	10-Percent life, cycles	50-Percent life, cycles	Slope	Failure index[a]	Confidence number,[b] percent
Standard	19×10^6	46×10^6	2.1	16/18	--
Shot peened	30	68	2.3	24/24	83

[a]Indicates numbers of failures out of total number of tests.
[b]Probability, expressed as a percentage, that the 10-percent life with the baseline AISI 9310 gears is either less than, or greater than, that of the particular lot of gears being considered.

remove the preservative, they were assembled on the test rig. The 0.635 cm (0.25 in.) wide test gears were run in an offset condition with a 0.30 cm (0.12 in.) tooth-surface overlap to give a load surface on the gear face of 0.28 cm (0.11 in.), thereby, allowing for the edge radius of the gear teeth. If both faces of the gears were tested, four fatigue tests could be run for each set of gears. All tests were run in at a pitch-line load of 1225 N/cm (700 lb/in.) for 1 hour, which gave a maximum Hertz stress of 0.756×10^9 N/m^2 (111 000 psi). The load was then increased to 5784 N/cm (3305 lb/in.), which gave a pitch-line maximum Hertz stress of 1.71×10^9 N/m^2 (248 000 psi). At this pitch-line load the tooth root bending stress would be 0.21×10^9 N/m^2 (30 000 psi), if plain bending were assumed. However, because there was an offset load, an additional stress was imposed on the tooth bending stress. Combining the bending and torsional moments gave a maximum stress of 0.26×10^9 N/m^2 (37 000 psi). This bending stress does not include the effects of tip relief, which would also increase the bending stress.

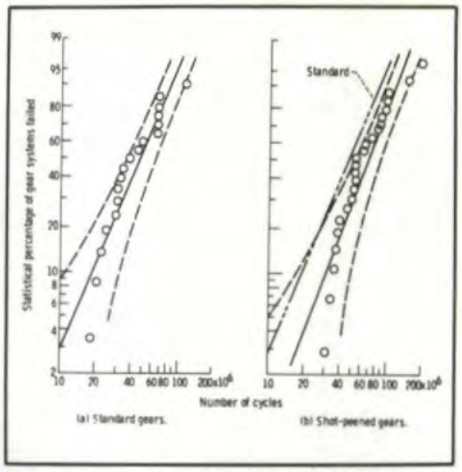

Fig. 4 – Comparison of surface (pitting) fatigue lives of standard ground and shot-peened carburized and hardened CVM AISI 9310 steel spur gears. Speed, 10 000 rpm; lubricant, synthetic paraffinic oil; gear temperature, 350 K (170° F); maximum Hertz stress, 1.7×10^9 N/m^2 (248 000 psi).

Operating the test gears at 10 000 rpm gave a pitch-line velocity of 46.55 m/sec (9163 ft/min). Lubricant was supplied to the inlet mesh at 800 cm^3/min at 319 ± 6 K (116° ± 10°F). The lubricant outlet temperature was nearly constant at 350 ±3 K (170° ±5°F). The tests ran continuously (24 hr/day) until they were automatically shut down by the vibration detection transducer, located on the gearbox adjacent to the test gears. The lubricant circulated through a 5-μm fiberglass filter to remove wear particles. After each test, the lubricant and the filter element were discarded. Inlet and outlet oil temperatures were continuously recorded on a strip-chart recorder.

The pitch-line elastohydrodynamic

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hob manufacturing units in India and I am also doing consultancy work for gear design and manufacturing problems. I have been working in this field for the past fifteen years.

I would be extremely grateful if you could add my name along with the list of qualified people who could get the magazine.

We would also like to have all the earlier issues published.

S. V. Shanmugam
Chowgule Matrix Hobs Ltd.
India

We run a machine shop under UNDP assistance for training and production of spare parts for small scale industries. We would like to subscribe to your magazine GEAR TECHNOLOGY.

Demrew Metaferia
National Project Officer
Addis Ababa, Ethiopia

I have been asked by several members of our research staff to approach you for the above journal.

Research is an important aspect of our work and the journal would reach a substantial number of people who have a direct influence on purchasing policies of this Department and of "clients". It would also introduce manufacturers' names to our undergraduates and postgraduate students for their future use.

Hilary M. Pickett
Librarian
Cambridge University
England

Many thanks for your letter. I must confess that the first issue of "GEAR TECHNOLOGY" was well received. In fact, someone pinched my copy. I, therefore, enclose the appropriate draft for one year's subscription plus the necessary addition for the five issues you will already have completed by the time this letter arrives.

Ronald Cowee
Gear Machines & Tools Pty. Ltd.
Marrickville, Australia

We received a complimentary copy of your publication; GEAR TECHNOLOGY at the Fourth International Power Transmission and Gearing conference of the ASME. We found it very interesting. We would like to receive a regular subscription.

Denis St-Georges
Project Engineer
Commission de transport
de la Communaute urbaine
de Montreal
Canada