

# B E T W E E N the BRANCHES

## Tigercat Unveils Two New Models

By Anthony Goad

Despite the location at the back of the demo site, further from the main entrance than any other exhibitor, Tigercat attracted the largest crowd at the All-American Loggin' Demo, a two-day affair held on May 30-31 just outside of Tuscaloosa, AL. With temperatures in the mid-80s, Tigercat's air-conditioned tent enticed many attendees to the stand but it was definitely the iron that kept them there.

Tigercat customers from all over the southeastern United States were in Tuscaloosa for the demo. Jeff Dunham, salesman for Cotton-Hutcheson, a Tigercat dealer in southern Alabama, was very impressed with the attendance particularly on the Friday. He saw it as a great chance "to show off the Tigercat product to loggers who have not yet bought a Tigercat. They can go from machine to machine and compare the products right there on the spot."

Dunham pointed out that it gave his customers the opportunity to speak directly

with the designers and other Tigercat people. According to Dunham, "Tigercat's openness is good for all Tigercat dealers, now and in the long run."

In the past decade, loggers have come to expect a complete display of Tigercat machines at these national exhibitions, along with some new gear thrown into the mix. As usual, Tigercat did not disappoint. The demo line-up included an 822 feller buncher with 5400 saw, a T250 track loader equipped with a Hultdins grapple saw and a 620 skidder all operating on steep and wet terrain.

Operating the 822 feller buncher was Dan Vaughn - owner/operator, Tri-State Timber Inc. Vaughn commented that the Tigercat site was very challenging but "running a shovel logging operation, I was used to it." Currently, Dan operates a Tigercat 845 buncher with a Koehring saw in the somewhat damp lowlands of southern Alabama. After using the 822 for two days, he com-

mented, "It's the quickest, quietest of any buncher on the market and the cab is very roomy." Overall, he added that the 822 feller buncher with the 5400 head "can't be beat."

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The prototype 630C attracted a great deal of attention. The machine has since entered serial production.

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Binky and Guke Tapscott of Tapscott Brothers Logging, Charlottesville, VA operated the T250 and 620 respectively.

Jim Lattay of Tidewater Equipment Co. (Thomasville, Georgia) stated that "despite the challenging conditions of the site, the Tigercat equipment in operation put on a good show" and was "a real attention grabber."



A T250 loader equipped with a Hultdins grapple saw worked the deck.

On static display were the M724D mulcher, the prototype 220 loader, a 240B loader with a Tigercat grapple and 718, 720D and 726B drive-to-tree feller bunchers. But the main event and crowd stunner was the prototype 630C skidder.

Despite the heat, many attendees spent a lot of time climbing over the prototype 630C, discovering how the new machine will fit into their operations in the near future.

The engine is totally isolated from the hydraulic components and cooling system. Other major differences between the B and C series machines include the tilt-hood, providing engine access that is unprecedented in any other log skidder and the IQAN control system. Tigercat president, Tony Iarocci calls the machine "revolutionary."

IQAN is an electro-hydraulic management system that monitors operator inputs and converts this data to electronic signals that control hydraulic valve and hydrostatic drive functions. Benefits of IQAN include integrated troubleshooting and simplified maintenance and repair. Hydraulic pilot

lines are eliminated. IQAN allows the 630C to operate with variable engine rpm. Full horsepower can be put to the ground for higher pulling speeds. The precise nature of the foot pedal and joystick controls are further enhanced.

Skidder product manager Shawn Pette was busy the entire two days answering many questions about the 630C. "All of our customers were very interested in this new model. Many of them that already have 630 or 630B skidders are very anxious to see this model working in the woods. This was clearly indicated by the many in-depth questions that were asked."

Tidewater's Lattay was very intrigued by the C model. "Whenever you mention electronics or computers, loggers in this area have a tendency to draw back - they have not been too successful in our industry up to this point... but my customers and I know that if anyone can resolve that, it's Tigercat."

Tigercat's unveiling of the 220 loader also captivated the crowd. While maintaining the strength and integrity incorporated into the existing line of Tigercat loaders, product manager Kevin Keats says, "the 220 completes the loader product offering by giving the logger a small loader that can be mounted on a truck or trailer." Powered by a Cummins QSB5.9 Tier II engine, the 220 also has optional delimber and slasher hydraulics.

Cotton-Hutcheson's Dunham commented that in his geographic area "there is a big demand for a lighter loader that can be easily moved by a smaller skidder; the 220 fits into that category."

At the AALD, Tigercat introduced the idea that the move to new technology can be achieved without compromising the quality and reliability that the machines are renowned for. Stay tuned for more news on the C-model skidders as the first machines hit the field this fall. ■

# Tigercat Extends Reach in Scotland

By Paul Iarocci

## LH830 harvesters with telescopic booms. A couple of firsts in the Scottish highland.

I recently visited the Inverness area in the north of Scotland to see two Tigercat LH830 harvesters in action, the first of their kind.

One year ago, Tigercat didn't have a harvester package for the 822 or L830 feller bunchers or the slightest presence in Scotland. But last September, in typical Tigercat fashion, an L830 arrived on the shore of Scotland equipped with a feller buncher boom, less head. The machine was destined for the APF forestry show even though everyone involved knew full well that the Scottish harvesting contractors don't use feller bunchers.

That didn't stop G Booth & Sons from buying the unit on the spot from The Forestry Shop, a Log-Max dealer with roots in Ireland. Owners Anthony and Patrick Keegan had just opened a small office for Forestry Shop UK in the town of Dunkeld just north of Perth, Scotland.

Buying an unknown product without a boom system even designed let alone attached from a new dealer may sound like a risky proposition. That said, G Booth & Sons are very satisfied with the machine. As for the other parties involved, including Forestry Shop UK, Tigercat and owner of machine number two, Mike Johnstone, it has been a positive experience.

Once the sale was completed last September, the next job was to get the boom system designed and shipped as soon as possible. After much discussion with the Forestry Shop's Anthony Keegan, engineer Mike Carlyle came up with a design

that receives very high marks from both contractors.

"I have to say, Mike [Carlyle] got the boom right the first time. I was impressed by that," comments Johnstone.

The new telescopic harvester boom system has a cut envelope from 11 ft 5 in. to 36 ft (3.5-11 m) and a bare pin lift capacity of 5000 lbs (2,270 kg) at full reach. The telescopic boom cylinder is located inside the boom.

I didn't really know what to expect in Scotland. Truth be told, I didn't think there were that many trees in that part of the world. In fact, in the last 50 years, numerous tracts of pine and spruce trees have been planted and continue to be planted; enough to sustain a 7-8 million cubic meter annual cut in the UK and an additional 3.5 million in Ireland.

In Scotland, clear felling is the norm. Timber harvesting contractors have adopted a cut-to-length system utilizing a mix of wheeled and tracked carriers with ample boom reach. 12, 14 and 16 tonne forwarders are primarily used for transport. The contractors are not so

much concerned with machine size as with percentage of ground that is travelled over.

Although the terrain varies widely it is usually either soft or steep. Hence the strong emphasis placed on boom reach. The less travel, the better.

The day we visited Booth's

cont. on pg. 4.



Owner/operator  
Mike Johnstone.

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Operator Ali Mathieson likes the cab.

operation, the LH830 was working a hillside with a slope that ranged from 30-50% with a sheer 100 ft. (30 m) vertical drop-off at the bottom. A single forwarder machine road bisected the hill midway with no forwarder access at the bottom. Operator, Ali Mathieson was felling the lowest trees on the hill that averaged 20-28 in. (50-70 cm) in butt diameter.

Instead of processing each tree on the spot, he would swing uphill and send the entire 80 ft. (25 m) stem through the feed rollers, launching it up the hill javelin style to be processed at a location higher up where the forwarder could reach the processed wood. Both the machine and the Log Max 9000 head were up to the task with the leveling capabilities, swing torque and feed force necessary to deal with these extremely challenging harvesting conditions.

Mathieson comments on the cab. "Visibility is much better than the competition. I can easily see the tracks with the full-length front window. I like the position over the tracks." At first Mathieson was concerned about the bars on the front window affecting visibility. "Now I don't even notice them." Ali also appreciates the comfort and interior space in the cab.

"The hydraulic fan makes a big difference," says Mathieson. He is able to clear pine needles and debris from the air intake area by pressing a button and reversing the fan direction. There is no requirement to exit the cab and stop production.

The ability to handle a heavy duty 3,600 lb (1,600 kg) head while the boom is extended is seen as an important advantage in the LH830 carrier. Tree size and terrain in Scotland dictates a head of that capacity and as demonstrated on Booth's job, the machine has the ability to use its reach effectively.

The LH830 handles large stems and tough terrain.



Mike Johnstone purchased the second LH830. He also became very interested upon seeing the machine at the APF show in Scotland show last fall.

The tract that owner/operator Johnstone was working the day we visited was gently sloping and quite a bit more forgiving than the steep grades of the previous day. But Johnstone has his own set of challenges. The 50-year old scotch pine can be merchandised in a number of different ways: a few lengths of saw logs, a few more of pulp logs, 1.7 m (67 in.) fencing slats and pallet wood. "Dealing with all those lengths slows things down," says Mike who over the long term is averaging about 20 m<sup>3</sup> per hour of processed wood with his LH830 machine.

Fitted with a Keto 500 with a 28 in. (710 mm) bar, the machine has no problem operating at full boom extension. "The main boom pivot location reduces undercarriage rocking," comments Johnstone.

Both machines required a urea tank. Urea is a mixture of nitrogen fertilizer and water. It is applied to the stump as the tree is felled, preventing fungus from attacking the butt. Fungus is undesirable because it can spread to living trees in the stand and cause disease.

The tank installation is done at the dealer level rather than the factory. "Different customers have different requirements," says Anthony Keegan. Forestry Shop has access to excellent facilities for doing these types of modifications at Munro Engineering as evidenced by the clean roof-mounted installation visible on Johnstone's machine.

The Forestry Shop has made a strong commitment to Tigercat as well as current and future customers. The dealership has already taken delivery of a large inventory of spare parts and has already sent service technician Michael Barnes to Canada for training on the track harvesters. Mick was able to spend a few days on the shop floor assembling and testing an LH830 that fittingly, is bound for Scotland. ■

# Promotions and Appointments

Along with some other appointments, three Tigercat product designers have been promoted to the role of product manager. Each started at Tigercat as a junior designer and progressed to this crucial management position. Product managers are primarily responsible for designing machines and enhancing the product lines but the position also involves a great deal of field research and customer support.



**Rob Pentesco**

product manager,  
drive-to-tree feller bunchers

Rob Pentesco earned his bachelor of engineering at McMaster University and joined the attachment group in 1997 as a summer student, focusing on the design of the 30-degree wrist for dual post saw heads. Pentesco worked on 5700 and 5400 saw heads until 2000 when he transferred to the cut-to-length group and moved overseas to work at the Tigercat facility in Hede, Sweden.

Pentesco reflects on his experiences to date, "Tigercat has given me the opportunity to meet people, live in, learn about and develop relations with various cultures within our global market." While working at the Tigercat facility in Hede, Pentesco met his fiancé Monica Lofth. When what sparked their international love connection he would only say that "in Sweden, the winters are long, dark and cold but the people are warm, fun and friendly."



**Matt Roberts**

product manager, track machines

Matt Roberts graduated from Mohawk College with a diploma in mechanical engineering technology. In 1996 he joined the Tigercat track engineering group. Roberts' work focused on component and system design for the 853 and 860 feller bunchers. In 2000 Roberts became lead designer of 860/870 series machines and was involved in the design and testing of

the ER boom system.

Roberts says that in his seven years at Tigercat he has learned extensively about equipment design and is appreciative of the opportunities the position has created for him. "In my position, I have been able to grow, travel, and really enjoy what I do. This is a fascinating industry; I couldn't imagine myself doing anything else."



**Shawn Pette**

product manager, skidders

Shawn Pette is a licensed professional engineer who studied at McMaster University and the University of Toronto. He started at Tigercat in 1998 in the wheel feller buncher group and was principally involved in the development of the 720C, 724, 724D and 718 models. In 2002 he transferred to the skidder group.

Pette commented that the value derived from engineering field trips is immeasurable. "The trips allow us to see our designs at work." He continues, "The hands on approach to product design and improvement is one of the reasons I enjoy working at Tigercat."



**Jon Cooper**

product manager, cut-to-length

In 1991 Jon Cooper joined the small design team that developed the prototype 726 feller buncher and was promoted to product manager for drive-to-tree feller bunchers in 1993. When Tigercat decided to enter the skidder market in the mid-nineties, Cooper switched to the role of skidder product manager and led the development of new line. He was recently appointed product manager for cut-to-length equipment and is now focusing on the development of a complete line of harvesters and forwarders.

Of his twelve year involvement with Tigercat he comments, "My years at Tigercat have given me a unique opportunity to witness and participate in the birth, growth and success of an incredible company. Hard work, determination, and the freedom to treat people the way you would want to be treated have made Tigercat what it is today - an excellent opportunity to work with many talented people inside the forestry community."



**Robin Barker**

engineering administrator

Robin Barker has been involved in forestry equipment design since 1974. Before joining Tigercat in 1995, he worked for companies such as Koehring Waterous and Weyerhauser. In his new role of engineering administrator, Barker will oversee the entire engineering department and monitor industry recommended and government legislated safety standards ensuring Tigercat machines meet or exceed.

Of the position he says, "Not only is Tigercat actively working to keep the products compliant with an ever changing, ever increasing number of worldwide standards but we are also involved as members of several organizations responsible for setting these off-road equipment and forest industry standards in the first place."



**Grant Somerville**

advanced engineering manager,  
track machines

Grant Somerville was first introduced to the forest industry through cooperative work terms at Koehring Waterous in the late '70s. He also operated a harvester in northwestern Ontario in 1978. Somerville joined Tigercat in 1992 as product manager for the 726 feller bunchers and in 1993

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began developing the track product line. He has been product manager for track machines ever since.

As advanced engineering manager, Somerville will focus on the development of new machines and technologies to keep Tigercat at the forefront of the industry.

Looking back on his career Somerville recounts, "Over the past 25 years, the forest industry has

been turbulent to say the least. However, this also meant there has never been a lack of challenge or opportunity, something few other industries offer. Work has taken me throughout Canada, the US, and nine other countries so far. Forestry is full of tough circumstances requiring people with the right mix of ability, character and sense of humour to overcome them." ■

## Tigercat Expands Parts Distribution

By Tracy Culp

**US parts distribution center in Georgia reduces costs and improves customer service**



Tigercat has successfully expanded the US portion of its parts distribution system. Early in 2001, the previous facility was replaced by a 7,200 sq.ft. (670 m<sup>2</sup>) warehouse in Vidalia, Georgia. The facility is meeting the demands of Tigercat's growing parts business in the southeast United States.

Maintaining a full-service parts distribution center in the southern US allows Tigercat to quickly and cost effectively ship parts to its distributors or direct to the customer.

Warehouse manager, Sandra Snively explains, "Vidalia is a central location; we can service our dealers and customers using most of the common carriers. We are between Macon and Savannah, GA approximately 20 minutes south of US Highway 16."

"The facility in Georgia represents our commitment to Tigercat's mandate - to provide top quality support for our machine owners," comments Tigercat parts manager, Brian Jonker.

Jonker's names three major advantages of the Georgia facility. "It allows Tigercat to help minimize machine downtime. It eliminates potential delays due to customs issues at the Canadian-US border and third and decreases freight costs on parts shipped to Tigercat dealers."

The warehouse operates five days per week 8:00 am - 5:00 pm and boasts full shipping and receiving capabilities. "Our dealers and their customers often arrange to pick up parts from here outside of our regular working hours," says Snively. "We



Warehouse manager Sandra Snively.

are here to serve our customers even if it means returning to the warehouse after hours to keep downtime to a minimum."

Jonker is pleased that the warehouse has increased its daily shipped orders by 50% since opening its doors. He is confident that the use of the facility by US distributors will continue to grow and he is planning further increases in inventory levels.

The Vidalia location also includes training facilities to augment the service training that is conducted at the Tigercat factory.

Tigercat service advisor and trainer Rick Routliffe reports that during peak times of

the year distributors hesitate to send their staff away for training when they are needed close at hand. "This is precisely the time of year that service training can prove most effective," says Routliffe. "Troubleshooting skills combined with up-to-date training can significantly reduce machine downtime."

Tigercat product support manager Phil Ricotta adds, "The ideal training facility is here, at the factory. We can show the machine in different build stages, set up several different scenarios and have the guys work closely with members of the engineering and assembly team. That can't be replicated at an offsite facility." Ricotta adds, "We'd really like to reserve offsite training for those who have already attended training sessions in Canada. The Vidalia facility helps to accommodate busy schedules and add additional training in the future." ■

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# Delivering the Goods

(excerpted from Logging & Sawmilling Journal - May 2003)

By Jim Stirling



An extension to the Tigercat 822's rear end accommodates a large counterweight, which helps with the machine's ability to pick up wood at full reach.

A customized Tigercat 822 buncher is delivering exactly what BC's Pioneer Logging requires: good performance and production.

Log harvesting and hauling contractor David Chevigny has to be responsive to his customers and he, in turn, looks to receive the same kind of service from his suppliers.

Chevigny certainly got that with his most recent equipment acquisition, considering the design features he needed

incorporated into his new Tigercat 822 feller buncher. The machine is performing well and productively where it has to in the bush because, when Chevigny and his people talked, Tigercat and their people listened.

"The biggest thing that impressed me with Tigercat is the president of the company spent two or three days with us, and their engineer was there all the time," recalls Chevigny. "They took into account everything I said. They were getting quite excited about the machine."

So much so that Chevigny's customized 822—the first delivered to Western Canada—is the template machine for the region. The Tigercat line of forestry equipment is distributed in British Columbia through Inland Kenworth Parker Pacific's 12 branches from Fort St John in the northeast to Nanaimo on Vancouver Island. Chevigny's Pioneer Logging Ltd is based in 150 Mile House and has been dealing with Inland Kenworth's Williams Lake branch for years, making the group's acquisition of the Tigercat line last year a fortuitous fit. But the Tigercat decision was not lightly taken.

"We knew all the areas that had to be addressed," says Chevigny. Experience has been the teacher. On occasion, a costly one.

The nature of Pioneer Logging's business is also germane to making solid machine purchase decisions. Pioneer pursues timber sales, developing and marketing more than 130,000 cubic metres of wood a year. The key is to make a shrewd assessment of each sale's overall potential.

Chevigny's crews have harvested blocks ranging from small diameter dry belt lodgepole pine running 0.10 metres per stem-50 metres per hectare-to wood a metre a stem in tough, ugly ground. "We have to have it all to keep competitive and efficient," says Chevigny.

Pioneer tried a handful of bunchers seeking the versatility required. Pioneer bypassed the standard Tigercat 860 buncher because the company wanted a machine with no tail swing. "We do a lot of selective logging," notes Chevigny. The new 822 model was fine for applications like plantation harvesting in the southern US but it was a much lighter version than what they wanted. This is where the talking and the listening clicked into gear to re-configure the 822 into a machine for all seasons in BC's varied terrain and timber types.

A 41 cm (16 in.) extension to the machine's rear end accommodates a large counterweight. It provides the stability to work efficiently and safely in steep ground and downhill applications and helps with the ability to pick up wood at full reach. The extension has the added advantage of providing a working step for the machine's back end.

Chevigny's 822 has a D6-sized undercarriage that's larger, heavier and all enclosed.

It encompasses the proven bottom end of the 860 model and makes for a relatively heavy machine, dressing out at around 31,300 kg (69,000 lbs) including fuel and counterweight.

The machine's 490 L (130 gal.) fuel tank is also larger than standard. Improved fuel economy coupled with longer engine life is anticipated with the machine's power plant.

It's equipped with another first, a QSL

nine-litre Cummins electronically controlled engine, rated at 280 horsepower (208 kW) at 1,800 rpm and an impressive and useful peak torque of 950 lb/ft (1,290 Nm) at 1,400 rpm. The Cummins engine is designed to combine responsive power across the speed range with the benefit of improved fuel economy.

Chevigny estimates he gets six gallons (23 L) per hour.

Cummins has extended the QSLs oil change interval to 500 hours. Fuel lines have been integrated into the engine block to eliminate leaks and ruptured hoses.

Chevigny specified a large radiator in the cooling system, functioning air-to-air with the engine allowing purging of debris. The enclosed heavy-duty boom is also designed to keep debris build-up to a minimum. A large pin on the tower base and the use of big bearings throughout adds to the machine's toughness.

On the business end is a Tigercat 5400 series 21 in. (530 mm) hot saw felling/bunching head. It uses larger and longer grab arms that are fast at accumulating smaller stems in a side pocket and depositing them in a tight bunch. Two large and adjustable cylinders control the head, allowing a rotation of 30 degrees to the right and 180 degrees to the left, says Chevigny. The flexibility allows easier positioning of stems in steep ground to help reduce skidding.

Maintenance access is superior to other zero tail swings, he says. The lack of contortion required to access the motor compartment and valving system is an important frustration-reducing and productivity-boosting factor. The operator's cab incorporates simplified controls and is pleasantly quiet, with the creature comforts of a new pick-up truck, he adds. Overall, the 822 with its beefed-up 860 and 870 components looks compact, solid and sturdy on its tracks.

The re-configured 822 was working in predominantly green and red attack pine beetle wood northeast of Quesnel early this year. Bug wood is pretty much the norm across

large tracts of the BC Interior these days.

The 26,000 cubic metre sale in reasonable ground was averaging out in pine to 0.30 metres per stem and was being trucked to Riverside Forest Products in Williams Lake.

Suitable Douglas fir was shipped to Weldwood of Canada's Quesnel sawmill. And Pioneer was separating construction material for sister company Pioneer Log Homes.

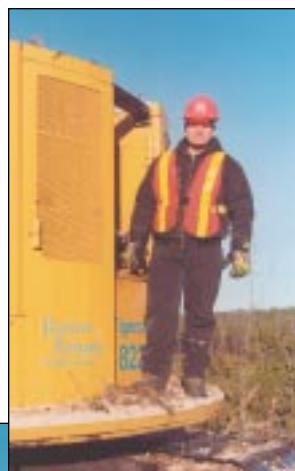
The show was producing long and short wood. The latter was generally 5.6 m (220 in.) and in increments of 0.6 m (24 in.) down to 3 m (118 in.) lengths, depending on Riverside's requirements.

Pioneer is used to providing the preferred lengths and quality wood the mills require. Chevigny says fine-tuning the measuring system on the processors has resulted in consistently producing accurate, quality lengths second to none.

Much of that is attributable to the close-knit team Chevigny has assembled at Pioneer. They work well together. Rene Bremner, Pioneer's general manager, and head mechanic Dan Grundin accompanied Chevigny and an Inland Kenworth rep to the Tigercat factory to help specify the 822. Dave Carpenter is Pioneer's bush foreman and Danny Erlandson is the 822's regular operator.

Chevigny was pleased with the 822's start-up. Tigercat had the machine bush ready before it left the factory. Chevigny figures the 822's solid construction, engine power and accumulating felling head was increasing Pioneer's bunching production in the 20 percent range. "It's the key machine to the whole operation. You have to put the wood on the ground." ■

David Chevigny of Pioneer Logging (inset). His Tigercat 822 machine is equipped with a first: a QSL9 Cummins electronically-controlled engine, rated at 280 horsepower.



# Elmia Baltic 2003

By Tracy Culp

## TIGERCAT DEBUTS 1018B AND IMPRESSES VISITORS WITH THE AGILE H09 HARVESTER

SkogsElmia Baltic 2003 has been described as the most anticipated industry event of the year for forestry professionals in Scandinavia. Set in the woods surrounding Brattborgs Gård, 30 km south of Jönköping, Sweden, the show opened June 11th and wrapped up June 14th.

Reported attendance at the four-day event exceeded 20,000 with Sweden, Finland, Norway, U.K., Russia and numerous other Baltic states represented.

The biggest news at the show — both literally and figuratively — was Tigercat's debut of the 1018B forwarder. According to export manager Gary Olsen, "The 1018B was without a doubt the show stopper with our booth being constantly overwhelmed by attendees. The interest in the 1018B and the soon to be 1014 was exceptional and those who saw the first prototype two years ago were already making comments about the obvious improvements they see in the subsequent machine."

The 18 tonne 1018B has seen a number of enhancements over the original 1018 introduced two years ago at Elmia Wood 2001. These enhancements include stronger, lighter-weight front and rear frames, an improved

control system and better service access. The valves for instance, are consolidated in one location and accessible at ground level.

Many of the forest owners, contractors and other forestry professionals to stop by the stand were eager to discuss the machines



Unconventional design:  
rotating cab and tilt-out  
engine enclosure.



The 1018B attracts a great deal of attention.

with the product designers, sales and service personnel that were on hand from the company's Swedish and Canadian offices. Tigercat is making a strong push in the direction of a complete harvester and forwarder line-up. Show attendees were able to get a sense of where Tigercat is headed with its strong commitment to the cut-to-length market.

H09 owners Magnus and Bruno Kempe brought one of their machines to the show and handled the harvesting component of the in-stand selective thinning demonstration. They also appreciated the opportunity to exchange ideas and discuss product developments with the Tigercat team.

During the selective thinning demos, the H09, alternately piloted by Magnus and Bruno, wowed audiences with its ability to adeptly maneuver through the forest without contacting or damaging any standing timber. The incredible performance can be attributed to operator skill, an overall width of only 2.1 m, the tapered cab and a side-tilting Mowi boom system.

In light of Tigercat's goal to build a

complete product offering for the cut-to-length market, Elmia was a great opportunity to build awareness and gather information about equipment applications and requirements for the future in Scandinavia, western Europe and the Baltic States. ■



Magnus and Bruno Kempe - Owners of two Tigercat H09 Harvesters.



Tigercat representatives pose in front of the 1018B with the UK contingent. (left to right) Ken MacDonald, Tigercat chairman; Tracy Culp, Tigercat marketing; Anthony Keegan, Forestry Shop; Mike Johnstone, LH830 owner/operator; Mick Barnes, Forestry Shop service tech; Jon Cooper, Tigercat cut-to-length product manager; Pat Keegan, Forestry Shop service manager; Anthony Goad, Tigercat dealer development; Tony Iarocci, Tigercat president.

## 2003/2004 SHOW SCHEDULE

Tigercat or a Tigercat dealer will be exhibiting at these shows in the coming year. For an up-to-the-minute listing, go to [www.tigercat.com](http://www.tigercat.com) and click on 'upcoming events'

	<b>SHOW</b>	<b>LOCATION</b>	<b>DATE</b>
<b>2003</b>	XII World Forestry Congress	Quebec City, PQ	Sep 21-28
	Ark-La-Tex Logging & Forestry Extravaganza	Natchitoches, LA	Oct 17-18
	Expocorma	Concepcion, Chile	Nov 12-15
<b>2004</b>	AusTimber 2004	Albury, Australia	Mar 29 - Apr 3
	Atlantic Heavy Equipment Show	Moncton, NB	Apr 1-2
	Forest Expo	Prince George, BC	Jun 3-5
	Expo Richmond 2004	Richmond, VA	Jun 4-5
	DEMO International	Quebec City, PQ	Sep 16-18

# John Kurelek: FORESTRY EQUIPMENT ENGINEERING LEGACY

by Duane Barlow, product manager, felling attachments



These key Tigercat team members all worked for Kurelek in the 70s at Koehring-Waterous. (left to right) Stan Bera, designer; Phil Ricotta, product support manager; Robin Barker, engineering administrator; Ken Harrison, technical publications manager; Grant Somerville, advanced engineering manager; Tony Iarocci, president; Kevin Keats, loader product manager and John Kurelek standing beside a 726B feller buncher with a 5500 saw. Kurelek was instrumental in the development of both products.

**Tigercat began its life as an engineering company. When Ken MacDonald approached Tony Iarocci in 1991 with the vision of a new venture to build forestry machines, Iarocci realized the initial step was to assemble a capable engineering team. His first phone call was to John Kurelek. Not only did Kurelek's participation in the design of the first 726 result in an outstanding machine, it also instilled an enduring spirit of innovation that defines Tigercat.**

Kurelek's experience in forestry spans five decades and nearly 30 patents. His own perspectives on his career are fascinating and his accomplishments extensive.

Fresh out of school in 1951, Kurelek went to work for Marathon Corp. in northern Ontario. A pioneer in mechanization, Marathon was probably the only company at the time with no horses on its limits. Marathon's pulpwood slashers were mounted on huge wooden skids. D7 bulldozers

towed the machines when they needed to be moved.

"Production time was lost in waiting for the dozer to arrive," explains Kurelek. "Since there were no hydraulic motors, every site move altered the slasher's line shafting alignments. This caused bearing failures."

He continues, "My first job as a young engineer involved predicting that rubber tires could carry and propel heavy loads in off-road conditions and then to mount a slasher frame on a three point suspension so the drives would not be twisted. The self-propelled pulpwood slasher works to this day."

By the late 1960s, Kurelek was working at Brantford Trailer, a manufacturer of log trailers and pallet loaders. At the time the prototype shortwood harvester was under development at neighboring plant, Koehring-Waterous. "On my usual route to work, I watched the prototype development through the fence," notes Kurelek.

The industry mandate of the day was to increase per-man-day productivity in Canadian woods from two to twenty cords and logging companies encouraged engineers to introduce automation at the stump. Koehring-Waterous envisioned a harvester with a long reach boom that could cut and process a wide swath in front and on both sides.

"I was hired by Koehring to make that idea work in the woods," says Kurelek. "Productivity calculations fortunately showed that the boom should only be long enough to let the harvester width through. It should move to the next tree at every opportunity, rather than get every tree within reach. This was probably my major contribution to practical application of the harvester concept and avoided in my mind

a competing patent claim."

The shortwood harvester catalyzed further advances in productivity, this time focusing on the shearing attachment. Kurelek was in the thick of it. "Although the shortwood harvester could fell and process a 2,000 pound 16 inch DBH (900 kg, 40 cm diameter breast height) tree, most of the stems were much smaller. This is what determined or limited productivity."

Kurelek questioned, "Could we collect three trees in the felling head and insert them together into the processing tower? Would they be processed clean enough and could we thus double our harvesting productivity? We experimented by bunching multiple trees on the ground. We picked them up with the single-tree head and processed them surprisingly well."

He continues, "My first idea for an accumulating head was to design an extra pair of opposed one-way bendable arms that would hold already taken trees while the next tree was cut. The bendable arms would be withdrawn from behind each subsequent tree. I struggled with how to make 'snake out' arms tough enough for woods-duty and flexible enough so the trees would not be flipped out. It was a great relief when our experiment with single-joint arms worked amazingly well."

The four-arm accumulating head with re-grabbing arms was patented in 1975 and subsequently became the North American industry standard.

Kurelek switched his focus to saws in 1980 when Per Melgren of FERIC offered patent permission to use a mechanism at the bottom of a Koehring head to slide or swing feed a 2,000 lb saw through a 20 in. tree. "I explained this to (then president of Koehring) Phil Huffaker. He looked at the complexity of the concept and wisely turned my proposal down."

Luckily Kurelek recalled from his shear development days that sometimes the arms would close without taking in the tree. It always stood for a second or two before deciding which way to fall. Kurelek abandoned the blade feed concept. "We

would push, swing or drive the blade through the tree and then close the arms in time to catch it."

At the time, some industry insiders estimated that only 10-20% of felling would be done with a disc saw due to the prohibitive purchase price and maintenance costs. Kurelek and his colleagues lugged a 35 lb film projector through the southern states. "We showed our New Sound in the Woods film to loggers. They often just shrugged and said 'Oh yeah but you sped that film up.' It was tough on our enthusiasm."

Equally difficult were the endless engineering change meetings. "I sat through many an uncomfortable hour explaining how still another final improvement was needed - while the new general manager twitched his mustache in frustration."

Problems were mounting. The saw dulled quickly. If operated in this state, it used too much power and force, fatiguing the blade. Sharpening procedures kept the feller

cont. on pg. 14.

## Planetary Gear Boxes



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buncher tied up for hours. Tooth improvements were elusive and profit draining. Hydrostatic drive-to-tree machines couldn't be found for experimenting in the US. "In



An early Tigercat 726 feller buncher. Kurelek's ideas for a better drive-to-tree buncher materialized with this machine.

At the time Tony Iarocci was engineering manager and Kurelek had started a consulting engineering company called FMD. Iarocci contracted him to do some fix-up designing. Iarocci says, "The most significant achievement to come out of this effort was the internally splined bearing adjusting collar. It cured the tendency of the bearings to self-tighten and burn up."

### The Tigercat years

The relationship between Iarocci and Kurelek continued. Kurelek was integral to the original Tigercat design team in 1992. Working with Iarocci and Jon Cooper (now product manager for cut-to-length equipment), the first 726 was designed and built in record time. The ingenuity, simplicity and rugged construction established Tigercat as an innovative manufacturer with the ability to listen to loggers and build equipment that actually delivered what it promised. "To be a success our ideas have to work, they must answer a need with a

promoting the idea, I got fired, I guess for being an expense and a pain," Kurelek muses.

After a few years of wide spread trials and improvements, the saw became a very successful product for Koehring.

"To be a success our ideas have to work, they must answer a need with a good job and they have to make money."

- John Kurelek

good job and they have to make money," says Kurelek. All held true with the 726 and this spirit of customer-driven innovation is imparted on every Tigercat designer.

When Tigercat set out to build drive-to-tree cutters, the market was crowded. The team knew their machine had to be better. The best chance was to win out in durability. "One only had to look at the weld repairs on relatively new machines in the bone yards of southern dealers to see that there was opportunity," Kurelek explains.

With an eye for force flows, pin sizes and simple metal selections, Tigercat structures were designed twice as strong as the competition. Kurelek also had other principles in mind that could finally be put to the test.

He wanted to turn the engine 180° so that the pumps presented themselves for servicing. He would respect the rules of hydraulic hose runs, designing the steel in advance to accommodate. He envisioned two large, opposed tapered roller bearings at the articulation joint. The cab door hinge would incline forward on heavy lugs to open with gravity. Anything on the exterior would be strong enough to break the wood it might encounter. Subsequent machine development has continued to respect these principles.

Tigercat initially equipped its bunchers with shears and saws made by other



The 1800 series bunching shear. Kurelek solved the stem alignment problem with the innovative 2-arm configuration.

manufacturers. These attachments could not accumulate bunches reliably; the trees would often jack straw. The attachment manufacturers were unwilling to invest the R&D required to design a good dual post accumulating head.

Kurelek noticed that bundle alignment was often spoiled when the flexible arm pulled out from behind the tree and moved it before re-grabbing. "Part of the problem was that the arms pivoted on opposite sides of the storage pocket. Each tended to have its own preferred place to put the tree. My thought was to pivot both arms on the same axis so they would push trees into the same place in the pocket."

Tigercat's accumulating shears and saws were patented in the mid 1990s. They are a significant contributor to increased productivity in the woods.

## ER development

When the Drott excavator-based feller buncher was first conceived in the 1950s, its energy wasting hydraulic system was implanted in the industry. To reach the tree, the operator had to work two levers and the engine always had to pump oil into a cylinder at a pressure — oil that became an energy loss.

The ER system harnesses such lost energy and provides smooth, fast performance. With one lever, the operator moves the boom in and out on a horizontal path. Kurelek considers ER the best invention of his career. "It will surely save our planet thousands of truckloads of fuel. Unlike the felling and accumulating attachments, which someone else would have soon invented, the ER circuit would probably still be unknown if I had not gone looking for it."

It's interesting to note that at one time or another Robin Barker, Stan Bera, Ken Harrison, Tony Iarocci, Kevin Keats, Phil Ricotta and Grant Somerville all worked for Kurelek at Koehring. These individuals would later become key team members at Tigercat. For so many reasons, the influences of John Kurelek have been crucial to the success of Tigercat.

In his mid 70's now, Kurelek is retired. However, his commitment to improving forestry equipment continues. He is always eager to give advice on a new design or help resolve a problem. ■



Kurelek considers the ER boom system the best invention of his career.

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## Editorial

# From B to C



The skidder design and production team posing with the very last 630B to leave the Tigercat factory

July 2003 saw the last 630B leave the skidder plant in Brantford, Ontario. The progressively higher capacity 630 and 630B machines changed the face of log skidding forever as contractors throughout the world realized that when you move a load from point A to point B the more you can haul per trip, the better.

The 630 series machines proved time and again that they could pull bigger, heavier loads than any competitive skidder on the market.

Tigercat succeeded where other manufacturers with deeper pockets had failed; they were the first to produce and successfully market a hydrostatically driven skidder.

Tigercat has hydrostatic skidders working successfully in North America, Chile, Brazil, Australia and New Zealand in every conceivable application. Up-hill pulling ability and performance in difficult terrain has become legendary.

Most are aware of the benefits of hydrostatic drive: smooth starts, steady traction, hydrostatic braking and the absence of gear shifting to name a few. With the next generation of Tigercat skidders, end users will also benefit from the introduction of electronics.

Tigercat has chosen the IQAN computer control system by Parker. IQAN is an electro-hydraulic management system that monitors operator inputs through the foot pedals and joysticks and converts this data to a usable electronic signal that controls hydraulic valve and hydrostatic drive functions. Basically, a few wires replace a myriad of pilot lines.

Why would Tigercat want to do this? Aren't electronics unnecessarily complicated and unreliable?

Not anymore. IQAN is simple, robust and water proof. There is no central computer with hundreds of wires running all over the machine. Instead, the computer is split into a number of smaller, simpler boxes. One box is located very close to the operator controls. Another is located close to the engine. The others are situated beside the valves they control; wires running from the computer box to the valve coil, engine sensor or joystick are quite short. The computer boxes are connected to one other with just two communication cables.

Troubleshooting is simple.

Machine responses to operator inputs are controllable and adjustable. Machine functions can even be interlocked without introducing additional complexities to the system.

The Master Display Module (MDM) has programmed parameters for each function, which provide for proper machine operation and reduce the possibility of abusive operation.

In addition, Tier II electronic engines communicate directly with the IQAN system. MDM monitors the engine and warns the operator if normal operating parameters are exceeded. The memory function allows a service technician to identify if these warnings were ignored or overridden.

IQAN control technology has been integrated into Tigercat forwarders as well as the L830 and L870 feller bunchers to control the leveling system — the on/off signal from the push buttons is converted to a smooth, ramped signal. The result is smoother, less aggressive motion when the machine is leveling.

Whether it's bunching heads, ER booms, hydrostatic skidders or electronic control systems, Tigercat will never stop innovating or testing new ideas as long as the result is productivity gains for loggers.

- Paul Iarocci, editor

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