How Stora Kopparberg’s Power Division at Borlänge made line work more efficient

Linemen Sune Hedstrom and Håkan Hedberg, with the By 206 that was equipped according to their ideas. Hedstrom “up the pole”- fixing a pulley for the winch wire.
Hägglunds tracked transmission line work

Imagine yourself in the control room of the Swedish company Stora Kopparberg’s Power Division at Borlänge, in the heart of Dalecarlia. The alarm has just sounded and, as it seems always to be in such situations, it's a public holiday — and late.

Transmission via the 130 kV line between Bäsko and the Repåckens transformer station is threatened — one of the tall wooden line posts is close to collapse, a victim of a woodpecker’s patient efforts to create a perfect home for the year’s clutch of woodpecker chicks. The fact is, the woodpecker is among the arch-enemies of power companies using timber posts.

Tough on horses
The first thought of duty linemen Håkan Hedberg and Sune Hedström is, where to find a suitable horse-sled at this time of night. Not only is it dark — it's raining cats and dogs and the wind is close to gale strength. The horse pulling the new line post through the woods will have a tough time indeed. The men too: the post must be winched by hand into the right position and then both post and shoring leg must be drilled, also manually. Suitable securing bolts must then be driven through, before the nuts can be tightened. All this has to be done by hand — an unenviable job, taking all night. But power supplies must be ensured at all costs.

The modern workhorse: the Bv 206
The situation has now been dramatically changed for Stora Kopparberg’s line workers — since Hägglunds Bv 206 tracked off-road vehicle came on the scene and literally transformed working conditions.

No longer need they struggle with horse-drawn transportation across near-impossible terrain. And, moreover, the hydraulic power take-off on the Bv 206 has infinitely simplified site operations.

Now, Hedberg and Hedström can seat themselves comfortably in their Bv 206 and simply press the starter for the rugged Mercedes turbodiesel. Even in the bitterest of winters, when temperatures can drop to —45 deg C in Dalecarlia, reliable starting is ensured by LP gas or Eberspächer heater.

The crew wear ear-muffs — not so much for noise protection, but to listen to music or a talkshow on the radio, while the Bv 206 travels sure-footed through the dense undergrowth. In twenty minutes or so the vehicle covers a distance that would have taken hours with a horse. Behind, the Bv 206 tows the new post on the special Wilhelmsen trailer with its wheeled skids. A few extra cable reels have been loaded on the trailer, just in case.

Well equipped
At the repair site, the darkness of the night is penetrated by the powerful broad beam of the worklight on the cab roof, revealing the ravages of the woodpecker. The new post is quickly winched into place and...
Vehicle revolutionises work at Stora Kopparberg

bootholes are made in seconds, using a big drill driven by the hydraulic take-off. Hydraulic nutrunners complete the assembly job.

A big tree close to the power line has been blown down by the wind and must be cleared away. No problems: the 7.5 hp hydraulically-powered chain saw soon makes firewood of the troublesome tree. The hydraulic shbuaher comes in handy for clearing branches that are growing too close to the power line.

The entire temporary repair job takes no more than an hour. After the holiday, a permanent line repair will be made. This job will also be infinitely simplified by the range of equipment which can be brought to the site on the Bv 206.

The pair of linemen (who chose the equipment specified for the Bv 206) now take a well-earned break. ...with hot food from the automatic hot cupboards at the rear of the cab. This is just one more example of the careful thought which has gone into every detail of the Häggunds Bv 206. The hydraulic power take-off facilitates the use of almost any kind of tool—from high-pressure washing equipment to pile drivers, not to mention the possibility of driving a compressor.

Time and labour saved

The linemen at Stora Kopparberg are naturally enthusiastic when they talk about their new workhorse. Hedström declares: "No doubt about it, the Bv 206 is easily the most important thing that's happened as regards the maintenance of power lines. Just think of all the backbreaking and time-consuming jobs which we have been saved, thanks to the tools we can use with the 206. It's just amazing!"

Sigurd Ringsby, who is in charge of maintenance on the Power Division's transmission lines, was careful to let the linemen themselves decide which equipment should be specified for the Bv 206.

"After all, he says, "it's they who have to work with the gear day in and day out, noting at the same time with a glint in his eye, "and of course they can hardly complain to me afterwards if things don't work out exactly as expected."

"Take the rear floor, for example. It was probably the only mistake we made when we fitted out our 206. We thought it would be a good idea to have a grid floor, so that dirt could fall through. But we didn't realise how much muck the tracks throw-up. There was nothing for it but to have a second think, and put down an aluminium deck instead."

Maintenance network?

There's no mistaking the pride of the Stora Kopparberg power people in their Bv 206.

"Ever since the rugged winter of 1979 we've been fighting hard to get off-road transportation", says Ringsby. "Obviously we hope that the Bv 206 are now have is only the forerunner of a complete maintenance network throughout the province, based on Häggunds 206 vehicles."
EQUIPMENT SPECIFICATION

By 206 tracked off-road vehicle for Stora Kopparberg AB, Power Division.
Year of manufacture: 1982.
Engine: Mercedes OM 617. A turbocharged diesel (one of the first fitted to a By 206.)
Registration: Classed as a commercial goods vehicle — this is, however, a special ruling in this case depending on the need for the Power Division to reach any emergency throughout a large district with maximum possible speed, hence the need to use public roads. The objection that the high/low ratio gearbox would affect km log readings was overcome when the authorities agreed to accept a manual log kept by the crew.
Winch: Type BTB 1000-312 with 40-45 m wire, controlled from driver’s seat by a switch acting via a double acting solenoid valve. This winch type is very flexible in operation and well suited for its vital role in line work.
Hand throttle: Operated from driver’s seat. Friction coupling permits infinite adjustment throughout rev/min range.
Cab heater: Eberspracher DUL 6600, fitted in cab.
Engine/battery heater: LP gas with Primus 2400 bottle fitted externally. Piping to engine cooling system incorporates a loop past battery set. Control from driver’s seat.
Hot cupboards: Electric, for two food containers.
Rubber moulding: Oak, sheathed with steel strip.
Radio: Communication radio link to control room at Borlänge. Ordinary broadcast wavelengths can be listened to in ear protection headsets. (The Power Division co-operates closely with the local radio station and important announcements are often made on the broadcast wavelengths.)
Upholstery: All seat backs and cushions covered with sheepskin.
Worklight: Switch controlled, at rear corner of cab roof. Searchlight: On cab roof, operated from front seats.
Rotary warning light: At rear of cab, on adjustable post or folding bracket.
Rear body: Frame of square-section tubular steel with expanded metal bottom and drop sides and tailboard. Side marker lights, tail lights, brake lights and flashing directional indicators. Crane bearing attachment. Tilt limiters between body floor and articulated frame. Lockable toolbox.
Wheeled skid trailer: Designed and built by Wilhelmsson Bil o. Maskin, Prenning, who also fitted-out the entire By 206. Can operate over bare ground as well as snow. Wheels are retractable. Special hinged design of skids (runners) ensure that the trailer maintains horizontal posture despite irregular terrain.
Crane: Hydraulics, Viking KSU 1150 with SWL 1.15 t/m. Maximum extension is 2.95 m radius at which SWL is 425 kg. Remote control. Location of crane at rear of load area was chosen by customer in order to permit operation over both rear body and trailer. It is envisaged that if several trailers are acquired these could be loaded individually for different worksites and left there while the By 206 is otherwise engaged, on a container system.
Buoyancy: There are plans to fit buoyancy attachments to the vehicle so that it could negotiate waterways in appropriate cases.

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