

# Cat® Proves the Point, with AccuGrade™



## Trial demonstrates beyond any doubt the benefits of machine control.

**W**e've yet to meet anyone who seriously disputes the advantages of using GNSS and ATS in civil construction

But when you talk to people on work sites they simply have a 'feeling', strong or otherwise, that it has brought them savings.

The very fact that it's in use on a site precludes direct comparisons, on that particular job, with the old way of doing things.

### Cat's Test, on a Complex Design

In their usual thorough way, Cat set out to perform a comparative test between new and old, on a construction task that was big enough to give truly meaningful results.

A few months ago at their proving grounds at Malaga in Spain, two identical sections of road were constructed side-by-side, one conventionally, and the other using AccuGrade, Cat's machine control solution.

The road design was complex, simulating such features as highway intersections or roundabouts.

The equipment used on the job was a D6N dozer, 330D excavator, 140H grader, and the usual backup of artic trucks and compactor.

During the test, detailed measurements were taken to define overall productivity, machine utilisation, fuel consumption, material usage, number of people on site and for how long, and finished quality.

Cat took care to generate fair comparisons. The same team was used on both road sections, designs were identical, cut and fill areas the same involving identical material, and the operators, although competent, had had no previous exposure to AccuGrade or any other machine control systems.

Conventional survey and staking was compared to digital data preparation using AccuGrade Office, the office software part of Cat's grade

control system. They also factored in the ATS set-up time, and number of people required.



### Finished Quality

Independent observers considered that the verges and side slopes looked much better with AccuGrade, and in relation to the assigned tolerance of +/- 20mm, the base course of the AccuGrade section was 98% within tolerance versus 45% for the conventional section.

The actual figures, based on spot checks at three points every 5 metres, were:

Sub grade:

*Conventional:*

On Grade 35%, low 30%, high 35%

*AccuGrade:*

On Grade 85%, low 10%, high 5%

After spreading, compacting, and grading 150mm of aggregate —

*Conventional:*

On Grade 45%, low 35%, high 15%

*AccuGrade:*

On Grade 98%, low 0%, high 5%.

### Material and Fuel Savings

The material savings amounted to 11%, and 43% less fuel was consumed on the AccuGrade section. Machine utilisation was more efficient, with less waiting time and longer passes. This was most notable with the 140H working under ATS, requiring only 32 minutes to bring the base course to grade versus one hour 49 on the conventional section.

The D6N also completed its task far more quickly, particularly on the

base. In total, machine hours were 24:32 on the conventional section versus 11:50 with AccuGrade.

Clearly, on a large project, the implications for wear and tear on undercarriage involves very serious amounts of money, not to mention incidentals such as GET.

### Reduction in Survey Costs

In this test, conventional staking etc. took two people 18:45 hours. By comparison, data manipulation to set up the AccuGrade equipment was timed at 54 minutes. That's a saving of one person, and 95% in time.

### Operator Experience

As we mentioned, the machine operators hadn't previously used machine control in a production environment but rapidly got a grip of things and were very enthusiastic converts after only a few minutes.

It says a good deal for the user-friendliness of the AccuGrade systems, that techno-rookies could climb on board and achieve significant cost savings on a relatively short job.

### The Bottom Line: 100% Quicker

Cat's test at Malaga showed 100% increase in productivity, based on the AccuGrade section taking 1.5 days to complete versus three days for the conventional section.

That benefit takes no account of fuel savings, material savings, reduced survey costs, reduced wear and tear on machines, and so on.

David Pinaire, who heads up the AccuGrade program for Cat, described to us at Bauma the massive education and training program that's going on world-wide. Putting Cat right out front with machine control truly has been a remarkable endeavour—puts us in mind of a huge roller that's steadily and deliberately gaining momentum. 