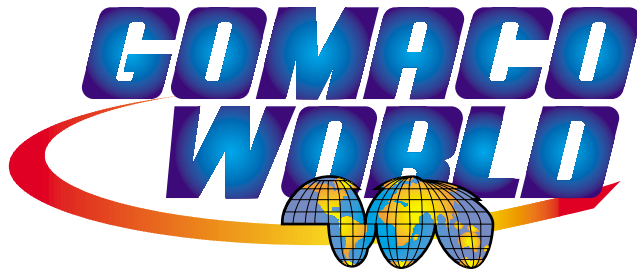
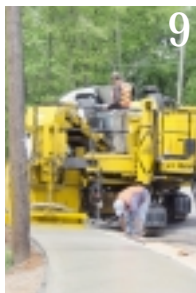


# GOMACO WORLD





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Photo by Ken Tippie HW-030304 D23

# Operation Enduring Freedom

The men and women in the RED HORSE Squadron of the United States Air Force are called upon to complete projects all over the globe. Often times they are the first unit in and will be the last ones out. They are self-sufficient and have all they need when they travel, including carpenters, medics, and cooks. Sometimes their projects are completed under enemy fire. It is the ultimate deadline pressure any builder can face.

RED HORSE is an acronym which stands for *Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer*. The 823rd RED HORSE Squadron is based out of Hurlburt Field, Florida, and is a heavy engineering construction unit. Their latest overseas project took them to the deserts of Oman, a small country bordering Saudi Arabia and the Arabian Sea in the Middle East.

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**“Can Do, Will Do,  
Have Done”**

– Motto of the  
**RED HORSE SQUADRON**

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“As it turns out, this \$27 million, 47 acre (19 ha) project, which covered an area equal to 36 football fields, was the largest ever constructed by RED HORSE,” Major Mark Mittler, on-site commander in Oman, said.

A major part of the project included concrete slipform paving.

“We were tasked to deploy to the area of operations (AOR) and construct an aircraft parking ramp with adjoining taxiway and arm/de-arm pads,” Senior Master Sergeant Ron Westerfield said. “There were only four men on our crew

who had slipform paving experience.”

The United States Air Force and the RED HORSE Squadron not only needed the paving equipment in a short amount of time, they needed a company that could train their men and teach them the concepts of concrete slipform paving. GOMACO stepped up to the challenge.

Weeks after the orders were placed for two complete paving trains consisting of PS-2600 placer/spreaders, GHP-2800 pavers with Auto-Floats®, and T/C-400 texture/cure machines, the equipment was ready for shipment. The fastest way to get six pieces of concrete-finishing equipment from Ida Grove, Iowa, to the deserts of Oman would be by air.

The Antonov-124-100 Russian cargo plane, one of the world’s largest commercial cargo airplanes available today, would transport the equipment to



Photo by Don Poggensee SH-120209 D6

*A view from inside the Antonov as the GHP-2800 paver is loaded at Eppley Airfield in Omaha, Nebraska.*

Both classroom lectures and hands-on training in the University's shop helped prepare the Squadron for their mission.

"We have experience with larger projects but not with slipforming equipment," SMSgt. Westerfield explained. "The hospitality shown to us while we attended classes was an eye-opener and the training at GOMACO University was a tremendous asset to our being able to operate the equipment."

Work on the project began in October 2002. Westerfield and the



Photo by Kelly Krueger SH-120205 D14



Photo Courtesy of RED HORSE Squadron

*Members of the Squadron unload the equipment in Oman.*

Oman in two separate shipments. The first Antonov shipment consisting of one full paving train left from Eppley Airfield in Omaha, Nebraska, on December 26, 2002. A second Antonov-124-100 flew out with the last paving train January 9, 2003.



Photo by Kelly Krueger SH-120202 D33

*One complete paving train fits inside the Antonov with room to spare.*

With the manufacturing of the equipment near completion and shipment pending, the members of the RED HORSE Squadron still needed training. A special week-long paving school at GOMACO University was scheduled.



Photo by Ric Moser HW-030308 D24

*When an Air Force person re-enlists, it's a special occasion and steps are taken to make it memorable. In this case, RED HORSE Master Sergeant Thomas Mattingly (right) is administered the oath by Captain Kevin Merritt on top of the GHP-2800 paver.*



Paving passes were 980 feet (299 m) long and 20 feet (6.1 m) wide with the GHP-2800.

RED HORSE Squadron arrived in early January 2003 and began preparations for paving.

“In the desert, there is a variety of subgrade conditions,” SMSgt. Westerfield said. “You can have sand that is as fine as baby powder and is difficult to level and remove or you have ground that is so compacted that you have to use an excavator and jackhammer to remove it.”

In the desert conditions, just setting stringline proved to be a difficult task.

“The stringline stakes were set in six inches (152 mm) of base material, as well as in some of the most compacted soil. It was pretty difficult at times, but when you use jackhammers with air compressors to drive the stakes it makes it easier,” SMSgt. Westerfield explained. “One of the most difficult things was dealing with the wind. There were times when there would be a constant 30 mph (48 km/hr) wind with 40 mph (64 km/hr) gusts causing sandstorms and making it difficult to set the stringline. We had a great crew leader in Technical Sergeant George Yepes who attended GOMACO University and had some previous experience.”

The total size of the new concrete parking ramp, taxiway and arm/de-arm pads was 980 feet (299 m) wide by 2100 feet (640 m) long. The entire project sloped 0.5 percent or 10 feet (3.05 m)

## Secret Training at the “U”

During the second week of December 2002, a special class was held at GOMACO University. Fifteen members of the RED HORSE Squadron traveled from Hurlburt Field, Florida, to Ida Grove, Iowa, for the week-long class.

The class provided the Squadron members with both classroom lectures and hands-on learning in the shop about the fundamentals of slipform paving and the operation of GOMACO equipment.

Attending the class were, front row from left, GOMACO Serviceman Ken Tippie, TSgt. Ralph Evans, SSgt. Jeremy Isaac, A1C Tony Moreno, TSgt. George Yepes, SSgt. Cresenciano Silva, TSgt. Jerry Girvan, TSgt. Steven Stanford, SrA Justin Hoessel and GOMACO Serviceman Ric Moser. Back row from left, MSgt. Thomas Mattingly, TSgt. William Lipscomb, SSgt. Eric Sexton, TSgt. Michael Maccarone, SMSgt. Ron Westerfield, TSgt. Jason Baker, and TSgt. Dale Coleman.



Photo by Kelly Krueger CV-120202 D4

The class learns the finer points of operating the GOMACO Controller on the GHP-2800 paver.



Photo by Kelly Krueger CV-120202 D14

A group photo of the Squadron and their instructors.

across the length of the concrete.

The GHP-2800s paved 20 feet (6.1 m) wide lanes, each 16 inches (406 mm) thick.

“The GHP-2800s did an outstanding job of putting down concrete,” SMSgt. Westerfield said. “There were very few problems and we could tell that the people who built them take great pride in what they do.”

A mobile batch plant capable of producing 288 yd<sup>3</sup> (220 m<sup>3</sup>) of concrete per hour was on-site. Dump trucks were leased from a local company and each had the capacity to deliver 11.8 yd<sup>3</sup> (9 m<sup>3</sup>) of concrete per truck to the paving site.

The concrete mix design had a high cement content with .75 inch (19 mm) maximum aggregate size and a high percentage of manufactured fines 0.12 inch (3 mm) or smaller. Water reducers and plasticizers were added because of the desert environment and water restrictions. Entrained air in the mix ranged between four to five percent. Slump averaged between one to two inches (25 to 51 mm).

“There were many variables and issues that we encountered every night that affected production, but on the average, we would pave a 980 foot



*A map of the Middle East region illustrates Oman's strategic location for the war.*

(299 m) lane in four hours, about 221 yd<sup>3</sup> (169 m<sup>3</sup>) an hour,” SMSgt. Westerfield said. “There would be times when we’d push the plant to its limits at about 288 yd<sup>3</sup> (220 m<sup>3</sup>) an hour.”

Several of the factors influencing production included hot daytime

temperatures, material deliveries to the concrete plant which had limited storage in the cement silos, and learning the slipforming process on the go. They also had to deal with some substandard materials, water shortages, language barriers when working with the locals and long supply lines.

To combat the hot desert conditions with temperatures exceeding 100° F (38 °C), 80 percent of the project was paved at night. Night-time paving solved some problems but it also created other complications.

“The most difficult part of this project was getting the plant to produce a consistent mix, not that it was all the plant’s fault,” SMSgt. Westerfield explained. “We would start paving at 3 or 4 p.m. while the temperatures were still pretty hot, but by 8 p.m. the temperatures had dropped to where we needed a drier mix.”

Every other lane was slipformed with stringline. Then, the Squadron would come back and pour the fill-in



Photo by Ken Tipple HW-030304 D14



Photo by Ken Tipple HW-030304 D18

*Eighty percent of the project was slipformed at night to combat the hot desert temperatures that surpassed 100° F (38° C) during the day.*



Photo by Ken Tipple HW-030304 D10

*Two T/C-400s follow the paver dragging burlap and spraying the curing compound on the 16 inch (406 mm) thick slab.*



# Volunteering for the Mission



Photo by Ken Tippie HW-030305 D19

**Ric Moser (right) offers some paving advice to a member of the RED HORSE Squadron in Oman.**

Word spread quickly around GOMACO Corporation... the Air Force was buying two of our paving trains for a classified project in the deserts of Oman. The RED HORSE Squadron would be doing the slipforming and their experience was very limited. The GOMACO Service Department would have to send two of their men to the desert to train and work hands-on with the Squadron for the first month of paving.

Two servicemen stepped forward and volunteered for duty, Ric Moser and Ken Tippie. Ric even had the opportunity to escort the first paving train shipment and flew aboard the Antonov with its all Russian crew.

“There was a lot to learn and with Ric and Ken there to teach us the entire spectrum, it went very well,” SMSgt. Westerfield said. “Ric and Ken were the best. There would have been no way that we could have completed this project without their expertise.”

*Fill-in lanes were slipformed with the paver locked to grade and eliminated stringline.*

lanes using the lock to grade feature. Paving locked to grade and the Auto-Float® attachment on the GHP-2800 pavers saved time.

“The Auto-Float® was essential to the proper completion of our project,” SMSgt. Westerfield said. “With our limited manpower, we didn’t have enough people to actually bull float and broom the entire project. Even if we did, it wouldn’t have been very efficient or effective to do.

“We tried to keep the hand-finishing to a minimum. Joints were cut at 20 foot (6.1 m) spacings equally throughout the project. It made for a total of 210,000 linear feet (64,008 m) of saw cuts.”

The T/C-400 texture/cure machines drug burlap and sprayed on a curing compound to complete the paving process.

“All of the GOMACO machines performed outstandingly and definitely met our expectations,” SMSgt. Westerfield said. “This was a major undertaking for us and we do a wide variety of construction tasks and not just concrete. If you have to go to the desert to construct anything... be patient. Things don’t happen as quickly over there.

“This project was in support of Operation ENDURING FREEDOM and directly contributed to the liberation of



Photo by Ric Moser HW-030309 D31

**Ken Tippie checks for edge slump.**

“This project was in support of Operation ENDURING FREEDOM and directly contributed to the liberation of Iraq. The men and women of RED HORSE that were involved in the completion of this project gave their all and sacrificed a great deal for their country,” SMSgt. Westerfield said. “It wouldn’t have been possible without the people of Ida Grove, Iowa, and the workers at GOMACO. They did a fantastic job.”




Photo by Ken Tipple HW-030305 D7

The transition from daylight to night-time paving created challenges for the batch plant because of the difference in temperature.

Iraq. The men and women of RED HORSE that were involved in the completion of this project gave their all and sacrificed a great deal for their country. It wouldn’t have been possible without the people of Ida Grove, Iowa, and the workers at GOMACO. They did a fantastic job.”

“This inspiring project was indeed a win-win situation for GOMACO and the U.S. Air Force,” Colonel Benjamin Anderson, commander of the RED HORSE Squadron, said. “As a result of unparalleled teamwork and dedication, our combined team achieved true success. Undeniably, this teamwork resulted in the fast-track completion of the largest and most challenging project ever constructed in the 38 year history of RED HORSE.”

Seven months after

beginning work, the concrete paving was finished and the air base was operational. The RED HORSE Squadron returned to their home base at Hurlburt Field more versatile than ever before. Their Squadron motto, “Can Do, Will Do, Have Done,” now includes concrete slipform paving. 

**Editor’s Note:** GOMACO Corporation is proud of the role we played with helping the RED HORSE Squadron achieve their goals. We’ve been waiting since January to share their story with our GOMACO World readers, but we made a promise to them that we’d wait until now. We didn’t want to do anything to jeopardize the safety of our troops in the field. It is with great pride that we helped them become concrete slipform professionals and are able to share their story with you.



Photo by Ric Moser HW-030308 D14

Workers were limited on the project and the Auto-Float® cut the number needed for finishing work behind the paver.

The new sign above the shop door at GOMACO University.

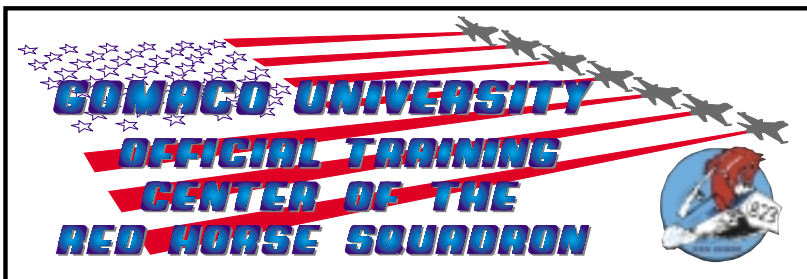


Photo by Ric Moser HW-030308 D16

Dump trucks with a 11.8 yd<sup>3</sup> (9 m<sup>3</sup>) capacity carried concrete from the mobile batch plant to the paver.





# Chris Buchanan Explains Stringless Sidewalk



*A view from the operator's platform looking down as the sensor rolls across the top of a catch basin. The photo below shows the finished sidewalk.*



Buchanan and Sons Inc. has been slipforming curb and gutter and sidewalk with their GT-3600 since 1999. Chris, the youngest of the Buchanan sons, is the company's vice president and GT-3600 operator. Of all the different profiles they slipform, sidewalk is Chris' favorite, claiming that "it just looks pretty."

They slipformed all of their sidewalk the traditional way, setting their stringline and trimming as they poured. Then they bid and won a project in Saw Mills, North Carolina, requiring them to slipform approximately 3000 feet (914 m) of curb and gutter. With the curb and gutter in place, they would then have to come back and scab on a five foot (1.5 m) wide sidewalk onto the newly slipformed curb and gutter.

The first step was preparing the grade. Equipment was brought in to create the required soil-cement treated subgrade. Once the grade was ready, the GT-3600 was moved in.

A North Carolina Department of Transportation (NCDOT) standard 30 inch (762 mm) curb and gutter with a three inch (76 mm) radius on the face and flow line was slipformed first.

The sidewalk could not be trimmed and poured simultaneously because Buchanan's do not have a left-side

trimmerhead discharge on their machine. Buchanan instead brought in a tractor with a box blade.

"The trimmer would have discharged towards the curb so we had to use our tractor instead," Buchanan explained. "We have two guys with rods and levels checking grade. My brother, Carl Jr., is on his tractor with a five foot (1.5 m) box blade. We get our angle right and blade through, gauging off the curb to get everything to grade."

The project had some challenging aspects with tight clearances because of utility poles and trying to set stringline to match the existing curb and gutter. Buchanan called GOMACO with an idea.

"It's about impossible to set stringline and pour to the back of curb," Buchanan said. "I had read other articles about guys sensing off their existing curb and pouring their sidewalk that way. I figured I should be able to do it with my machine, too."

The needed parts and sensor brackets were shipped to North Carolina. A week after pouring the curb and gutter, slipforming the scab-on sidewalk began. The GT-3600 needed a quick mold change and some reconfiguration of the leg positioning and it was ready to go.

"It doesn't take very long to switch to the sidewalk mold. You just pull the

two drawbar pins, unhook the holddown, pick up off the mold, drive over the sidewalk mold and set down on it,” Buchanan explained. “It took me a while to figure out how I wanted to set up the machine. That’s where the adjustable legs are great. I can move them where they need to be.”

Buchanan was concerned the tracks would mark on his newly poured curb and gutter. With the GT-3600’s All-Track Positioning (ATP), he was able to sideshift the back leg over so it was running on the asphalt road, straddling the new curb and gutter.

“The first 50 feet (15.2 m) didn’t pour very good because I didn’t have it adjusted right,” Buchanan said. “My brother wanted to park the thing and start handforming. I told him not to bail out yet and to give me a few more minutes to readjust some things. After that, we poured 200 feet (61 m) more and he was very happy with it saying ‘I’m glad I thought of this, it works pretty good.’”

The sidewalk is five feet (1.5 m) wide and four inches (102 mm) thick. The concrete is a NCDOT 4500 psi (31 MPa) standard mix design for both the sidewalk and curb and gutter.

CG-060304 D5



*The aggregate base course is leveled out with a tractor and box blade to form the grade.*

Slump averaged three inches (76 mm) for the sidewalk and two to 2.5 inches (51 to 64 mm) for the curb and gutter.

Perhaps the most challenging aspect of the project was getting the sensors set and the wands at the proper angle.

Buchanan had to reverse the direction of his sensors so he could pull the grade skis across the curb instead of pushing them along. By pulling the skis, it helped keep them from catching on anything and getting pushed back into the sensor and damaging it. The tube is still

positioned in front of the sensor and the GT-3600’s controller stays in the push operating position.

He also had to run the wand at a 45 degree downward angle instead of the normal horizontal position. If the wand had been kept horizontal, it would have been flush with the bottom of the sensor and the sensor would have been hitting the curb.

“I had the front sensor in line with the front of the mold and the rear sensors in line with the back of the mold,” Buchanan explained. “The set up kept the front of the mold from catching. It looked awkward at times because the front of the machine would be high, but at the mold, it was perfect.”

Another trick Buchanan used was slipping a round, wooden ball on the end of the steering wand. The ball kept the wand from falling into and catching on the joints in the curb.

“It just rolls round and round and doesn’t fall into any holes,” Buchanan said. “I even rolled it over the top of a catch basin with no problems. The sidewalk went right to the back of it, the finishers edged it and we kept on going. I knew if we did the catch basin



CG-060305 D33



CG-060306 D18

*The trimmerhead was sideshifted and vertically lifted out of the way while the sidewalk was slipformed.*

*Buchanans slipformed the curb and gutter in the first phase of the project. A week after completing it, they came back with their sidewalk mold and tackled their stringless challenge.*



CG-060308 D6

we'd be showing off, because most people just leave them. They won't even tie into them when they're pouring their curb. I think it's aggravating not to and then have to go back and do them by hand."

Very little finishing work had to be done to the sidewalk because of the concrete mix design and the set up and finishing capabilities of the GT-3600. The sidewalk was edged along the expansion joint separating it from the curb, bull floated, and joints were cut in. Control joints were saw cut every five feet (1.5 m) and expansion joints were every 50 feet (15.2 m).

"A lot of the sidewalk didn't even have to be edged and I think that had a lot to do with the mix," Buchanan said. "I had the mold so close to the back of the curb that it was actually rubbing against the expansion joint. There was nothing that could physically blow out.

"The big trick to it was that I didn't lock the mold down. The reason I left my mold loose is when I set the mold down, I could push it over two or three inches (51 to 76 mm), set it down all the way, and then set it into the curb. I wasn't trying to push in or out while I was pouring, only when I was setting

*The GT-3600's All-Track Positioning (ATP) allowed Buchanan the option to move his back leg over far enough so the track wasn't running on the newly slipformed curb and gutter.*



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The best advice I can give is buy a GOMACO. I know I wouldn't be pleased with anything else because I wouldn't be able to do the things I'm doing now," Buchanan explained.

---

up each time."


The 3000 feet (914 m) of sidewalk was slipformed in three days. The best production was approximately 1100 feet (335 m) slipformed during a seven hour day.

"We're the only ones around here that do this and it's going to be one of our selling points," Buchanan added. "The GT-3600 has allowed us to do something we've been doing all along, concrete work, at such a fast rate. It's been opening doors to do more grading, more storm drainage and other aspects of the project, not just handforming 3000 feet (914 mm) of curb and sidewalk."

Because of the GT-3600 and the Buchanans' own work ethic and desire to produce a quality product, the company is growing at a phenomenal rate.

"We are one of the fastest growing companies in western North Carolina and the GOMACO curb machine is what got it all started," Buchanan said. "We just got a project where we were preselected and were the only contractor allowed to bid on it due to our honesty, quality of work and other factors like that."

With all the success they're experiencing, the company hasn't forgotten their roots and the lessons Carl Buchanan, the company's founder, taught them.

"Our dad taught us to take pride in our work and take the time to do the job right," Buchanan explained. "The best advice I can give is buy a GOMACO. I know I wouldn't be pleased with anything else because I wouldn't be able to do the things I'm doing now. A lot of my competition are running a locally built product, but me, I'm running a real machine." 



*Close-up photographs of the sensors illustrate Buchanan's unique set up and the exact positioning of the sensors and wands.*

# Earning Bonus with an IDBI on Highway 81

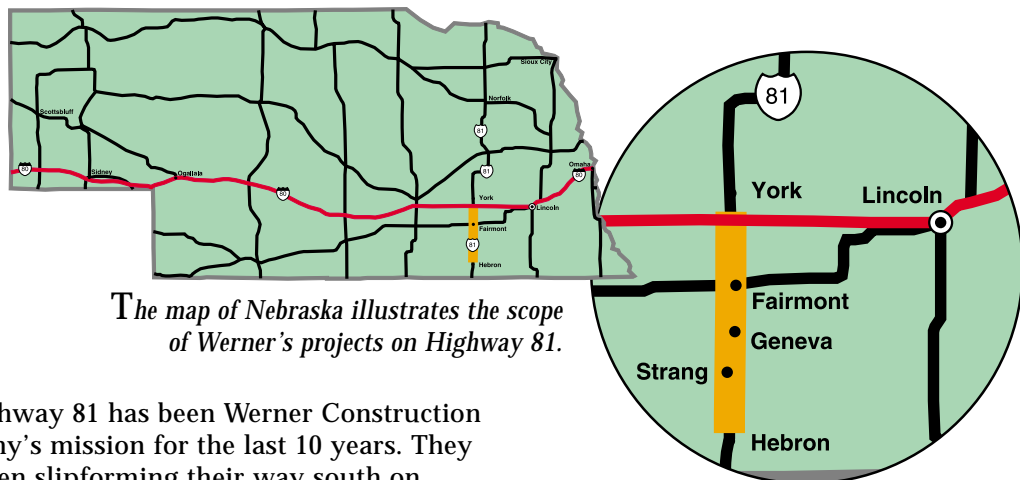
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The map of Nebraska illustrates the scope of Werner's projects on Highway 81.

Highway 81 has been Werner Construction Company's mission for the last 10 years. They have been slipforming their way south on Highway 81 in southeastern Nebraska. Since 1997, their goal for the highway has been to turn 36 miles (58 km) of the two-lane highway into a four-lane roadway leading to the Nebraska/Kansas border.

In 2001, the GOMACO owners decided to upgrade their paver to a GHP-2800 equipped with an In-The-Pan Dowel Bar Inserter (IDBI).

"We wanted the IDBI mainly because of production, labor and trimming," Rob Wemhoff, project manager, said. "Production and labor-wise, it saves us between five and six people that would usually be working on the dowel basket crew. Trimming-wise, if you're behind on your trimming and you still have to set dowel baskets, you need a day in between trimming and paving. With the IDBI, essentially you can follow the trimmers. You can be paving a quarter mile behind the trimmers and have two operations going at the same time."

Werner's jobs on Highway 81 are any project manager's dream job. Traffic runs on the existing two-lanes while the new lanes are constructed. The project is open and accessible and a portable batch plant supplies concrete without a long haul time. Between seven and 13 trucks haul concrete to the job site at a steady pace.

"This is good

work," Wemhoff said. "We're still dealing with traffic, but it's nothing like city or interstate work. I like building work like this and it's fun to do new work. We can be a lot more productive."

They are in the process of completing the last contracts on the highway, two separate jobs connecting Fairmont to Geneva and Geneva to Strang. The biggest problem they've faced is Mother Nature and an extremely wet Nebraska spring. It's affected not only the concrete paving, but base preparation, too.

"Geneva has a lime-treated subgrade with a crushed concrete or millings base course. Strang has a fly-ash treated subgrade with crushed concrete base," Wemhoff said. "The crushed concrete base at Strang is pretty forgiving if it gets rained on. The millings base, if that gets a couple of inches of rain on

it, we might have to tear it back up and start over. We've prepped non-treated subgrade three or four times, it gets rained on, and we start all over again."

Despite the rain, Werner completed the two contracts ahead of schedule.

"Geneva north and south started April 2, 2001, with 320 working days allowed," Wemhoff said. "Strang north and south started on November 5, 2001, with 200 working days.

Photos by Kelly Krueger HW-060315 D30



HW-060317 D9



HW-060316 D10

Werner Construction Company has 36 miles (58 km) of new roadway on Highway 81 in Nebraska. They are using their GHP-2800 paver with IDBI to slipform the 29.5 foot (9 m) wide, 10 inch (254 mm) thick concrete road.



FT-060303 D8



HW-060315 D25



HW-060315 D27

*Wemhoff supervises the trimming operation. A powered Spanit® work bridge drags burlap. Spray cure is applied to the new roadway.*

Both jobs will have five to 10 days left over when they're completed."

Their production has been averaging 3000 yd<sup>3</sup> (2294 m<sup>3</sup>) per day with some days exceeding 3500 yd<sup>3</sup> (2676 m<sup>3</sup>). Werner's rideability has been excellent, also. The state of Nebraska is paying them a three to four percent or higher incentive bonus on these last two jobs on Highway 81.

Werner's paving process begins with grade preparation and two 9500 trimmers. The 9500s are each equipped with 18.8 feet (5.7 m) wide trimmerheads for maximum cutting width. The 9500s run in tandem, one in front of the other, with the back one trimming in the opposite lane than the first. The first 9500 windrows the trimmed material to the trailing machine and that trimmer discharges into the haul trucks. They run off a dual-stringline with telescoping extended sensor arms reaching over to the stringline.

"We have the longest trimmerheads made so we can run them side by side," Duane Childs, job superintendent, explained. "We'll trim subgrade half a day, back up, lay the base and then trim the base, and just keep a procession between them and the paver. I think the dual-stringline setup is more accurate and increases our production. We can trim a mile (1.6 km) per day."

The GHP-2800 with IDBI follows closely behind the

*Werner operates two 9500s with 18.8 feet (5.7 m) wide trimmerheads to trim the subgrade and grade. They are run off a dual-stringline which Werner feels increases the accuracy of the cut.*

9500s. It is paving the new roadway and shoulders 29.5 feet (9 m) wide and 10 inches (254 mm) thick. The IDBI inserts 26 bars, 12 inches (305 mm) apart, across the width of the slab. The 1.5 inch (38 mm) bars are inserted into the slab every 16.5 feet (5 m).

A rear-mounted bar inserter places a #5 bar every 24 inches (610 mm) into the center line of the two lanes. The bar inserter is controlled by the IDBI's computer.

"The IDBI wasn't a hard process to learn," Childs said. "We have Clyde Stamper, he's our paver operator, and he's pretty good on a computer. When we first got our machine, service representatives from GOMACO and Tim Jindra, from our distributor Murphy Tractor, came out and helped



FT-060303 D16



FT-060302 D24

Photo by Randy Bach HW-060314 D20



The IDBI inserts the bars into the slab.

HW-060313 D18



The T/C-600 applies the longitudinal tine.

HW-060316 D4



Final rideability results were excellent.

us with set up. Tom Bell helped us with start up and taught us how to run the IDBI computer. They all took pretty good care of us.”

Sections of the new roadway were saw cut to check the accuracy of the IDBI’s bar placement. All of the bars were accurate and well within the state specifications.

“The GHP-2800 with IDBI does a nice job,” Childs added. “They run a profilograph with the two-tenths blanking band to check our ride and we usually get bonus pay on all of it.

“To get bonus pay, you have to make sure your machine is set up and lined up right. We use the two-quarter trick. You run your stringline across and make everything flat.

Then, you take two quarters and put them together and that’s how much draft you put in your pan just to feed the back pan.”


The GHP-2800 is also equipped with an Auto-Float® to apply a finish to the new roadway. The T/C-600 texture/cure machine follows the paver applying a longitudinal tine and spray cure.

“There’s three things to get a good ride... stringline, stringline, stringline,” Wemhoff said. “Stringline is the most important thing. Track line and finishing are important, too. You’ve got to run on a trimmed grade and your track line has to be hard. You can’t have any soft spots in it at all.

“With finishing, the state wants us to check the slab with a straight edge. When it comes out of the paver, it’s fine and you just don’t want to mess up the slab while you’re straight edging it.”

The last two jobs of Werner’s project on Highway 81 are almost complete. They will have finished the \$26 million project early and earned bonus on the 418,610 yd<sup>2</sup> (350,000 m<sup>2</sup>) of mainline concrete pavement that they have slipformed with their GHP-2800 with IDBI.

Their next project takes them to Highway 26 slipforming a new roadway between Scottsbluff and Minatare, Nebraska.

“We’re the subcontractor on the project and all we have to do is pave seven miles (11.3 km) of 30 foot (9.1 m) concrete on a new grade,” Wemhoff said. “It’s going to be a really nice job.” 

HW-060315 D32



HW-060316 D15



The accuracy of the IDBI was tested in several saw cut slabs. All of the bars were accurate and within the state’s specifications.

# GT-3600 Opens Doors for a Handforming Expert

Photos by Ed Lampe CG-050203 D14

Hipskind Concrete Corporation in Fort Wayne, Indiana, is a company with a varied past. In the 1970s, they specialized mostly in asphalt paving but did a little bit of everything to stay competitive. It was during the '70s that Patrick Hipskind, the current owner of Hipskind Concrete, started working for his father and taking care of the concrete work.

The '70s is also when Hipskind first tried slipforming curb and gutter with a tow-behind form. Their first attempts didn't prove to be successful.

"Ninety percent of what we did was reconstruction where you remove and replace the existing," Hipskind explained. "With the old pavement grades and the rest of it, the machine just didn't adjust fast enough to carry a decent grade."

Slipforming was abandoned and Hipskind returned to their tried and true method of handforming all of their curb and gutter.

In the '90s, Hipskind decided it was time for a total career change. He packed up his family and headed out to the Yukon Territory of Canada.

"I just got fed up with the headaches and went to the Yukon Territories and mined gold for four years," Hipskind said. "We took out \$3.5 million in gold but it cost me \$3.8 million to do it and that wasn't a good thing."

He returned to Indiana and went back to concrete work, mainly handforming curb and gutter.

It wasn't until 2002 that Hipskind Concrete would once again reinvent itself. Handforming would be replaced by slipforming when Hipskind purchased a GT-3600 curb and gutter machine from GOMACO.

"Last spring we had a couple of really good hands just up and walk without any notice at all," Hipskind explained. "We had a pretty good load



*Hipskind Concrete has more than tripled their curb and gutter production since adding a GT-3600 to their operation last year.*

on the books at the time and there was some work coming up that I knew we could be competitive with if we could get the curb in faster and increase our production.

"I just called Kent Godbersen, GOMACO's Midwest District Representative, on the phone and asked him if he had one in stock. Never flew out to Ida Grove, never ran a machine, just jumped in with both feet..."

The majority of Hipskind's projects are reconstruction in residential neighborhoods with existing trees, utilities and tight-clearance conditions. They also face the challenge of scabbing on to the existing roadway and essentially pouring their curb and gutter in a hole. Tight clearances and below the grade slipforming are some of the challenges the GT-3600 was designed for.

"Seldom are we in the open grade where you're wide open and there's no trees or any of the rest of it to get around. Because of those reasons, we liked the smaller, tighter design of the GT-3600," Hipskind said. "We use the extra steering features a lot when we're picking up, moving off, getting around in the neighborhood and it works really well. We go around a lot of trees where we have to pull up, move over, shift a little bit here and there and it all works just like they planned. It saves a lot of back turning, twisting and tight-clearance with the rehab work."

The majority of the curb and gutter Hipskind slipforms is either 24 inch (610 mm) roll curb, 20 inch (508 mm) stand-up or a 24 inch (610 mm) chairback that has to have continuous steel reinforcing. The profile they slipform depends on the existing curb in the neighborhood they're reconstructing.

"We're dropping and changing the mold all the time," Hipskind said. "It's not a tough process and it goes

real quick. One man can do it. The system on the GT-3600 works really good... drop the profile, replace it, lock it in place, and she's ready to go."

Their concrete mix design is a standard Indiana Department of Transportation #8 mix with slump averaging 1.5 inches (38 mm).

Depending on the project size and the number of driveways, the crew will average between five to six men. In residential neighborhoods, driveways will be every 50 to 100 feet (15.2 to 30.5 m). The driveway cutout attachment saves both time and concrete.

"It saves us a lot of grief and a lot of concrete because we don't have to shovel half of it off again," Hipskind said.

Finishing work, according to Hipskind is almost nonexistent as long as a quality mix is fed into the GT-3600. It was a hard lesson for the new slipforming crew to learn.

"To run a curb machine, you have to know what concrete looks like and what it's supposed to look like," Hipskind explained. "It helps when the operator has been around it long enough to know when the concrete's not coming out of the truck right. It's all in getting the mix and the consistency right to eliminate the finishing. When we first started, nobody had worked behind a machine before and they wanted to get on the curb and start rubbing it. They were



just making themselves more work. Now they've learned to leave it alone, just touch it up a bit, and broom it. It was a big learning curve for the boys behind the machine."

Production continues to increase on every project. By the end of the season, they were slipforming 3200 feet (975 m) of curb and gutter in a day, more than tripling what they averaged while handforming.

"We're used to doing hard-way construction, but by the end of the season, my boys were standing with their hands on their hips thinking this machine is the only way to go," Hipskind said. "It's all ready opened up a few more doors for us, just with the workload we did last year and the versatility of it. It makes us a lot more versatile. Things go a whole lot faster and production is a whole lot quicker."

Hipskind is now into his second season of slipform paving. His advice for other people considering a curb and gutter machine is simple.

"If you want the production, if you want to do it right, if you want to do it fast, and if you want to drive the Cadillac, you better order the GT-3600," Hipskind said. "There's only one top of the line and I like to do things right so I don't have to do it again. In concrete, doing it once is the only way to go."

*Finishing work is almost nonexistent with the GT-3600 and Hipskind runs a slipforming crew of only five or six men.*



CG-050203 D16



CG-050203 D12

*Steel reinforcing (right) is manually fed into the mold on the GT-3600. The steel is mandatory in Indiana's 24 inch (610 mm) chairback curb and gutter.*



CG-050203 D19



# Accuracy and Versatility of the GOMACO Trimmers

by Dennis Clausen, Director of Training

## Cut an Accurate Grade

Accurate subgrade requires the proper settings and adjustments be made on the trimmer. One of the key items that must be adjusted properly is the relationship between the height of the trimmerwheel teeth and the moldboard.

When the trimmerwheel is adjusted properly, the tooth marks are slightly visible in the compacted subgrade behind the trimmer (tooth marks may not be visible in a loose subgrade such as sand) (Photo 1). If the teeth are set too low in relation to the moldboard, excessive fine material may be left on the grade (Photo 2). If the teeth are set higher than the moldboard, "chunks" of the subgrade material may be torn out of the grade (Photo 3). If the teeth are too high, it can also cause high tractive pressure, difficulty controlling the steering of the machine and problems maintaining precise grade control on the machine. In most cases, the teeth are set to operate .25 to .375 inch (6 to 10 mm) below the moldboard. One way to check for the proper adjustment is to simply observe the grade behind the trimmer. Another way is to place a 6 x 6 x .375 inch (150 x 150 x 10 mm) plate under each end of the moldboard (should be on hard surface). The teeth should just touch the surface that the machine is sitting on. If not, adjust the wheel up or down as necessary (Photo 4).

One item that affects the relationship between the height of the trimmer wheel and the moldboard is tooth wear. On earlier machines, the teeth were a hardened casting. This type of tooth would wear down over time, changing the relationship. How long it took for the teeth to wear down depended on the type of material being trimmed. Obviously teeth wear was a lot quicker in an abrasive material. As the teeth wore down, the trimmerwheel needed to be lowered to



CL-110105 D24

Feeding a concrete pump on a bridge deck project.

maintain the relationship. When the teeth wore down to the holder, they needed to be replaced (Photo 5). With new teeth, the trimmerwheel needed to be raised back up to maintain the relationship with the moldboard. If compensation for tooth wear was not made, a poorly finished subgrade resulted.

Today's machines feature a carbide-tipped tooth. These teeth do not wear as fast as the old style, therefore less adjustment is needed. If the carbide tip breaks off, the tooth must be replaced.

Another item that will affect the finished grade is the sensitivity setting of the elevation controls. If the sensitivity setting is not correct, it will cause deviations in the subgrade. If the sensitivity is set too low, it will cause gradual "swales" in the finished product. Loose stringline or too much spring tension on the sensor wands can also cause these "swales." However, if the line is loose, or the spring tension high, the "swales" will be between the grade stakes with the grade correct at each stake. If low sensitivity is causing the "swales," it will be random and will not necessarily follow the grade stake spacing. If the sensitivity is set too high, it will cause the machine to over react. Initial grade sensitivity setting for an Analog system is to turn the adjustment all the way clockwise and then

back a quarter of a turn.

Initial grade sensitivity setting on a Micro system is 4 to 5 indicators showing. Initial grade sensitivity setting on a Network system is 12 to 15 indicators showing and the setting is number 12 to 15 on the G21 system (Photo 6). The initial slope sensitivity setting on any of the control systems is normally at maximum. Once trimming operations have begun, adjust the sensitivity setting as high as possible without the machine becoming over sensitive. The sensitivity can be also affected by machine travel speed, rear conveyor position and depth of cut. Adjust the sensitivity to give the best results.

## Saves Time & Material

Normally a trimmer is used to cut the final subgrade in preparation for paving. However, it can be used for more.

Consider for example when open graded base material must be placed on the subgrade. Normally a motor grader makes several passes to cut the base prior to applying the base material. If the grade is not cut close enough with the motor grader, an excess of material is used (wasted).

For example, if an extra .5 inch (13 mm) of base material is used on a project that is 24 feet (7.32 m) wide and 2700 feet (823 m) in length, over 100 tons (90 Metric Ton) of additional material is required. If the blade is used to cut the base material to final grade, the excess is simply pushed off to the side and wasted.

Now consider the use of the trimmer. It is used to cut the grade to the exact elevation, normally in one pass, prior to the placing of the base material. After the base material is in place, the trimmer is used to cut the base material to exact grade, again in one pass. The open graded base is now at the correct thickness and elevation. The excess material can be

Photo #1 - visible tooth marks



Photo #2 - excessive fine material on grade



Photo #3 - chunks torn out of subgrade





CG-100203 #11

**Placing concrete west of Fargo, North Dakota.**

windrowed or loaded into haul units to be saved for the next project.

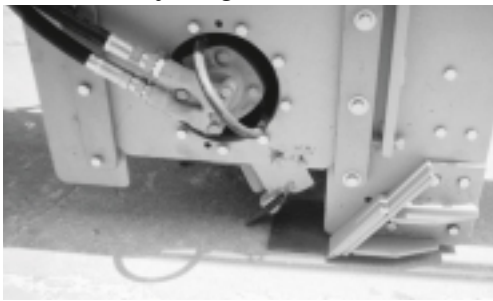
The same example will hold true when paving. If the grade cut with the motor grader averages .5 inch (13 mm) low for the same dimensions as above, an extra 100 yd<sup>3</sup> (76.5 m<sup>3</sup>) of concrete will be used (wasted). If the grade cut with the motor grader is consistently high, it will cause a thin slab which may have to be removed.

## Versatility is the Name of the Game

Today's contractor wants more versatility in a machine. Therefore, the question comes up, "What can I do with a trimmer other than trim grade?" A placing attachment is available for the machine. This attachment is installed in place of the trimmerhead in just a few short hours. With the placing attachment installed, concrete can be delivered from the central mix plant in dump or mixer trucks and placed in front of the paver without the trucks being on the trimmed grade. The material is dumped into the hopper and is conveyed to the paver in a swift action. Using this procedure allows dowel bar baskets to be preset on the grade in front of the paver. The operator can control the "head" of concrete in front of the paver by controlling the rear placing conveyor.

A contractor in St. Louis, Missouri, uses his 9500 for more than just placing concrete in front of his pavers. Concrete is delivered to most of his jobs by dump truck from central mix, even hand pours. He runs the concrete through the 9500 and accurately places the material in the forms. He also dumps concrete into the 9500 and supplies it to his Commander III when pouring barrier/ parapet walls and even

**Photo #4 - adjusting the trimmerwheel**



FT-029601 #1

**Spraying lime-stabilizing material on the grade.**



FT-059904 #13A

**Sidemounted trimmerhead widens roadways.**

when pouring curb and gutter.

A contractor in California uses a trimmer to cut the grade for slab-on-grade house construction. The grade for the concrete slab the house is to be built on must be within specs. Another contractor said he could cut the grade quicker with a motor grader. A housing development needed grade cut for approximately 20 new homes. The contractor with the trimmer cut 10 and the contractor with the blade cut the other 10. The motor grader did indeed cut his 10 in less time. The inspectors then showed up to inspect the grade. All 10 done with the trimmer were within spec, while more than half of those done with the grader were out of spec and required more work.

Other contractors that pour a lot of monolithic curb, gutter and sidewalk needed a better way to cut the rough grade. They equipped their trimmer with a monolithic trimmerhead and cut the rough grade ahead of their Commander III to within one inch (25 mm).

Highways built in days of old were often only 20 to 22 feet (6.1 to 6.7 m) in width. Most of the highways built today are at least 24 feet (7.3 m) wide. To improve the safety of these older highways, many of them are widened. This is done by excavating along the side and widening the base slab. The entire

**Photo #5 - teeth in need of replacement**



FT-048901 #4A-5

**Picking up windrowed asphalt off the grade.**



CS-069206 #17

**Placing rock over a barrier wall for subgrade.**

roadway is then overlaid, resulting in a new, wider road. The excavation along the side is normally accomplished through the use of an excavator of some type. The grade accuracy is less than desirable, causing the waste of paving material. GOMACO manufactures a special trimming attachment for the front of the 9000 or the 9500 that allows trimming to a specified width and an exact grade. The normal trimmerhead is removed and the special "shoulder trimmer" is installed. This trimmerhead is side-mounted, therefore keeping both tracks of the machine on the existing slab. Elevation and steering are normally taken off the existing slab, providing for an accurate match. The excess material that is trimmed can be windrowed to the side for back fill, or it can be loaded into haul units to be transported off the job site.

Another contractor added a slurry spray bar to the front of his trimmerhead. He sprayed lime-stabilizing material on the grade as he was trimming and mixed the material into the base material. The material was conveyed to the rear of the machine where it was then spread and compacted.

So as you can see, with a little ingenuity, the GOMACO 9000 or 9500 can be used for more than just trimming.



**Photo #6 - the G21 controller**

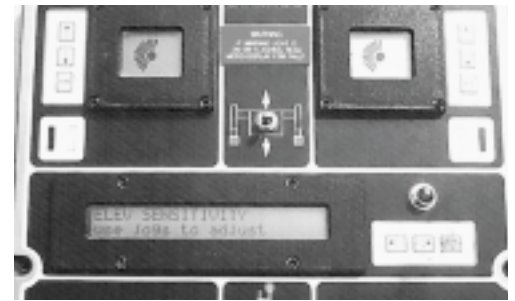




Photo by Kelly Krueger FT-060301 D9

# GRADE TRIMMERS AND MOTOR GRADERS

a discussion with Kendall J. Kelly, GOMACO's Southwest District Representative with over 30 years experience in the concrete construction industry

Bridges, buildings, and roadways have one thing in common, for an acceptable final product there must be an excellent foundation. In a roadway, the foundation is the subgrade or subbase. Depending on the geographical area, this may be anything from natural soils with various types of clays or sands, some type of rock or a combination of these.

## VARIATIONS IN THICKNESS AND DENSITY

Engineers usually design the subgrade, or the material directly beneath the concrete or asphalt paving, to perform at an optimum to allow for the longest life of the concrete or asphalt paving. No matter what the composition of the subgrade, it should be of a consistent density and cut to an elevation that is absolutely parallel to the final surface placed on top.

This is important for several reasons. With either concrete or asphalt, it is somewhat common knowledge that equal thickness of

placed material while in the paving mode will result in superior ride smoothness. Since concrete must be vibrated for consolidation and asphalt is normally compressed with a roller, variation in thickness makes for variation in density from top to bottom of the placed material. This is not acceptable for good, long-term results.

Cost is always an over-riding factor. When the concrete material being placed is bid by the square yard, based on a specified thickness rather than by volume, it is essential that the subgrade be accurate in relation to the top of paving.

Concrete is almost always bid by the square yard so accuracy of the subgrade is always paramount. Asphalt in years past has normally been bid by the total weight in tons of asphalt used. The more tons used, the more money in the contract. Not many asphalt contractors were concerned about overall thickness until smoothness specifications started to appear.

## MOTOR GRADER OR TRIMMER?

Subgrade preparation is about to begin. Do we use a motor grader or a trimmer? Both have their place on the job site.

For many years motor graders were used for final subgrade preparation because most road building contractors owned a motor grader. They would normally be operated by an individual who had expertise in cutting "fine grade."

This was normally accomplished by a surveyor setting what were known as "blue tops." These were simply square, wooden stakes driven into the ground until the top of the stake, which was painted blue, would be at the correct subgrade elevation. Depending on the profile of the roadway, there was usually a stake driven every 25 or 50 feet (7.6 or 15.2 m) apart on each side of the roadway and also down the centerline. The motor grader operator would make multiple passes on the roadway



*A 9500 trimmer makes a cut through frozen ground on a project in Grand Rapids, Michigan, in the middle of January.*

cutting the grade until he could see the “blue top,” and consequently, the final subgrade elevation was achieved.

Because of blue tops being cut out by the moldboard, this sometimes required multiple settings of the blue tops by the surveyors. This added time and cost to the project.

Just as a side note... today, after the blue top is set to elevation, a “chaser” is nailed to the top of the blue top to aid the motor grader operator in knowing how close the blue top is to his moldboard. The chaser is made from polyurethane strands that, after being attached to the top of the blue top, stick up vertically about three or four inches (76 to 102 mm).

The most common problem was that the area between the blue tops may not be exactly the same elevation as over the blue tops because the operators would push the moldboard of the motor grader down as they approached the blue top. Another problem that the motor grader operator would encounter would be subgrade density that would vary because of different base materials and the moldboard would not maintain the same elevation as the operator desired. In other words, the moldboard may “ride up” or float over more dense material and cut in deeper in less dense material.

That is what separated the normal motor grader operator from a good “blade man.” This situation is

*Sensing off dual stringlines averages the errors in the stringline from each side, trimming the grade exactly the way the paver will see the stringline.*

compounded by the fact many engineers specify either lime or cement-stabilized natural soils or select materials. The mixing of these materials creates a very dense and, after some time, extremely hard material that is almost impervious to a blade. The trimmer will in most cases be able to cut this material accurately.

## THE ADVENT OF SLIPFORM PAVING

Once preset stringline came into use, with the advent of slipform paving, many contractors used a combination of stringline and blue tops to attain their desired subgrade elevation. Also at this time, the grade trimmer came onto the scene because this machine would follow the same stringline that the paver would follow.

This eliminated the necessity for the surveyor to set blue tops, but sometimes they are still written in the

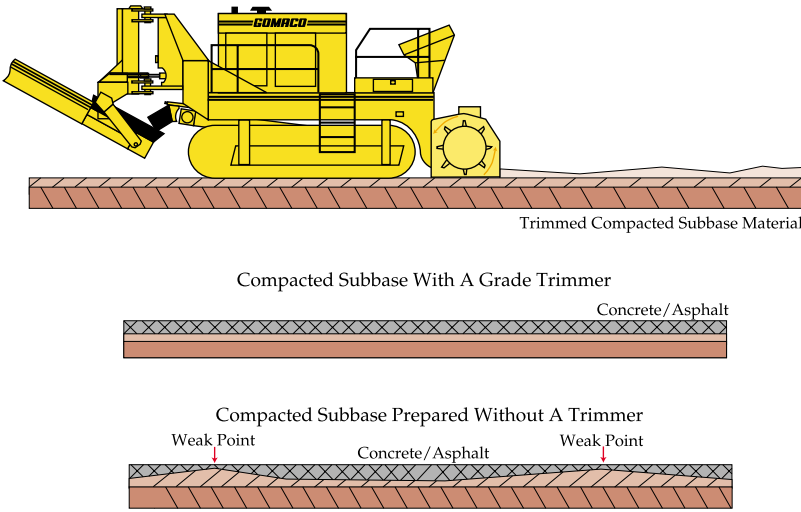
specifications for an additional elevation check. The premise of the trimmer is that with a rotating mandrel or trimmer wheel that has teeth evenly spaced across the width of the wheel, the teeth are cutting the subgrade. The moldboard that follows directly behind the wheel is simply containing and scraping the excess loose material to be loaded on the loading belts.

This effectively eliminates the problem of a motor grader with a blade or moldboard that may float over the high-density material and cut into the lower-density material. The composition of the subgrade makes an enormous amount of difference in the way trimmers and motor graders react to that material. One example would be a subgrade that has a lot of clay which, when compacted to density, is very hard. The trimmer, because of its cutting action, “chips” away at the material and is able to maintain an accurate grade, usually in one trimming pass if the machine is operated correctly.

The motor grader on the other hand, with this same material, will have a tendency to float over this hard material. It may take several passes to cut it down to final elevation. This process occurs whether the machine is operated manually or if it has some type of sensor system to follow the stringline or is GPS/Laser database controlled.

Another example would be a subgrade material consisting of mainly subaggregates and sand with not much clay or “binder” present. This type of material shears very easily and even if compacted to high density will be easily cut by a motor grader following





A 9000 trimmer is controlled by the Laser Alignment stringless guidance system as it trims grade on a project near Panora, Iowa.

a stringline or GPS/Laser database control. The trimmer will also cut this material with ease.

### OTHER ADVANTAGES OF A TRIMMER

When trimming what is known as select material, such as previously placed aggregate base, lime or cement-treated base or even lime or cement-stabilized natural soils, the excess materials that come from the trimming operation can be loaded on a truck while trimming and hauled to another area on the job site where a low-grade condition exists.

This keeps the contractor from wasting the high-cost select material. Even if select material is not used and local soils are being trimmed, the excess material can be moved to the back side of the stringline where it can be used for backfill to the edge of slab. This saves the contractor time and money. He can accomplish a task while trimming that would either require tearing down stringline or several extra pieces of equipment to move the material. If the local material is needed elsewhere, it can be loaded on a truck while trimming, again saving additional equipment and expense.

### STRINGLINE CAN AFFECT THE FINISHED PAVING THICKNESS

Both trimmer and motor grader slope controls are very accurate. In many cases the slope controls are so accurate they point out irregularities in the setting of the stringline.

This is usually seen when the slope control is used to transfer the stringline grade on a given slope to the center line of the roadway. When making the return pass on the opposite side, with the same amount of slope in the opposite direction, if the subgrade elevations do not match in the centerline there is obviously a problem!


Normally this comes from small errors that occur when setting the stakes for the stringline and then other small errors when setting the stringline itself. If these errors are all negative or positive, the amount of error can be enough to cause concern about finished paving thickness.

One way the trimmer helps eliminate this is by using the extended sensor booms to sense both strings simultaneously while trimming. This effectively averages the errors in the stringline from side to side, thereby

trimming the grade exactly as the paver will see the stringline, which is both sides at the same time. This keeps yield loss to a minimum.

Since the trimmer is not only following the stringline for grade but also alignment, it makes the process very easy. On the other hand, the motor grader is usually driven manually and doesn't normally have a way to sense elevations of two stringlines that may be as much as 40 feet (12.2 m) apart. Three dimensional laser/database control systems, properly operated, eliminate this situation.

### – KEY POINTS –

- Accurate grade control regardless of trimmed material density
- Less reliance on highly experienced motor grader operators
- Single pass operation saving time
- Ability to place material while trimming behind stringline, saving time and extra equipment
- Ability to place material while trimming into trucks for removal, saving time and extra equipment
- Ability to sense two widely spaced stringlines simultaneously 



GOMACO trimmers can either discharge into haul units for easy removal or over the stringline for backfill material.



HW-070302 D3

**Hydropower Engineer Bureau #13 use their GP-2600 to pave a new 30 feet (9.2 m) wide, nine inch (23 mm) thick roadway connecting China to Pakistan. They are currently paving near Kashi City, in the Xinjiang province of China.**



CG-070304 #19A

**Astaldi uses their GT-6300 with high-drive track to slipform a 15.7 foot (4.8 m) pass for a new roadway near Santa Ana, El Salvador.**



CG-060301 D13

**Lambert & Grenier slipform ribbon curb in tight-clearance conditions on a project in Drummondville, Quebec, Canada.**



CG-070308 D7

**Giant Construction Guam slipforms four inch (102 mm) thick, 7.5 feet (2.3 m) wide sidewalk on a project in front of the Micronesia Mall in Guam.**



CG-050303 #0A

**A new generation Commander III with a rear-mounted auger finishes a test pour in Toulnoustouc, Quebec, Canada. Aecon will be slipforming inverted stairway to form the sides of a dam.**



HW-060305 #2

**AMEC slipforms a slab 25.6 inches (650 mm) thick as part of a test pour at the Heathrow Airport in London, England.**



CG-080307 D1

**Meltreach Proprietary Ltd. is the slipform contractor on the first ever slipformed barrier in the Philippines. They are using their GT-6300 to slipform wall as tall as 6.1 feet (1.85 m). Meltreach has approximately 12.4 miles (20 km) of the Texas-type barrier to slipform on the North Luzon Tollway near Manila for the project's main contractor, Leighton Asia.**



The GHP-2800 impressed Japanese officials and had no problems with edge slump on a test project for the new international Chubu airport near Nagoya, Japan. Each paving pass is 24.6 feet (7.5 m) wide and 18 inches (460 mm) thick.



## GHP-2800 Chosen for Japanese Airport

GOMACO will be the first paver manufacturer to represent true slipform paving on a civil aviation airport in Japan. Chubu, the new international airport near Nagoya, Japan, will be built by three consortiums, each made up of three Japanese contractors. Two of the three consortiums will be using GOMACO equipment on the project and Taisei-Rotec, a Japanese contractor in one of the consortiums, will be supplying their GOMACO PS-60 placer/spreader and GHP-2800 paver.

The project will be paved in passes 24.6 feet (7.5 m) wide and 18 inches (460 mm) thick. Edge slump concerns are a major consideration on this project and since it's the first slipforming on an airport in Japan, everyone wants to see it succeed.

"Taisei purchased the GHP-2800 specifically for this job," Tim Nash, GOMACO International Regional

Manager - Asia Pacific, said. "They decided to purchase a GOMACO because they had serious concerns about meeting the criteria on this extremely important 'first ever' slipform construction on a civil aviation airport."

Over 50 visitors were on site from 17 different companies, including the Japan Slipform Association and the Central Japan International Airport Company, to watch the initial paving test.

"All present were in agreement that the tests were extremely successful and 'true' slipforming with the GOMACO GHP-2800 gets the green light for Japan's Chubu Airport," Nash said.

Watch for a future story on the Chubu Airport in a future edition of *GOMACO World* magazine.

# **GOMACO**

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