

# HYUNDAI **EDGE** MAGAZINE

HYUNDAI CONSTRUCTION EQUIPMENT MAGAZINE

Vol. 40 | Autumn 2014

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Cummins Engine  
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First Order





### HCE will supply the highest quality products

Dear Hyundai Dealers and Customers,  
I am much honored to introduce myself as a Chief Production Officer on this Hyundai EDGE magazine.

All employees of Hyundai Construction Equipment (HCE) are making efforts to overcome the current economic crisis, doing the utmost to provide customers with high quality and trouble-free products.

In order to produce good products without any defect such as leakage and crack, we have enhanced inspection over the entire manufacturing process and consistently complemented production facilities. For example, we installed a new specialized flushing process for maintaining hydraulic oil cleanliness and strictly tested every machine's performance.

In addition, we operate activities which every employee participates in the production innovation process to achieve quality. Our subcontractors also benefit from this system as we provide regular process audits and technical support.

Besides, safety has been the top priority in our management policy. HCE has paid unceasing attention to keep the workplace safe as we understand that quality comes from a safe working environment.

As a result, HCE will supply the highest quality products so that Hyundai dealers have more competitive sales power and better customer satisfaction.

We deeply appreciate your continued support and will reward you with the best quality at all times.

I wish you great success in business.  
Yours sincerely,

**Shim Jae-man**  
Vice President of Production Department  
Construction Equipment Division  
Hyundai Heavy Industries



Use your smartphone!



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From Shim Jae-man  
Vice President

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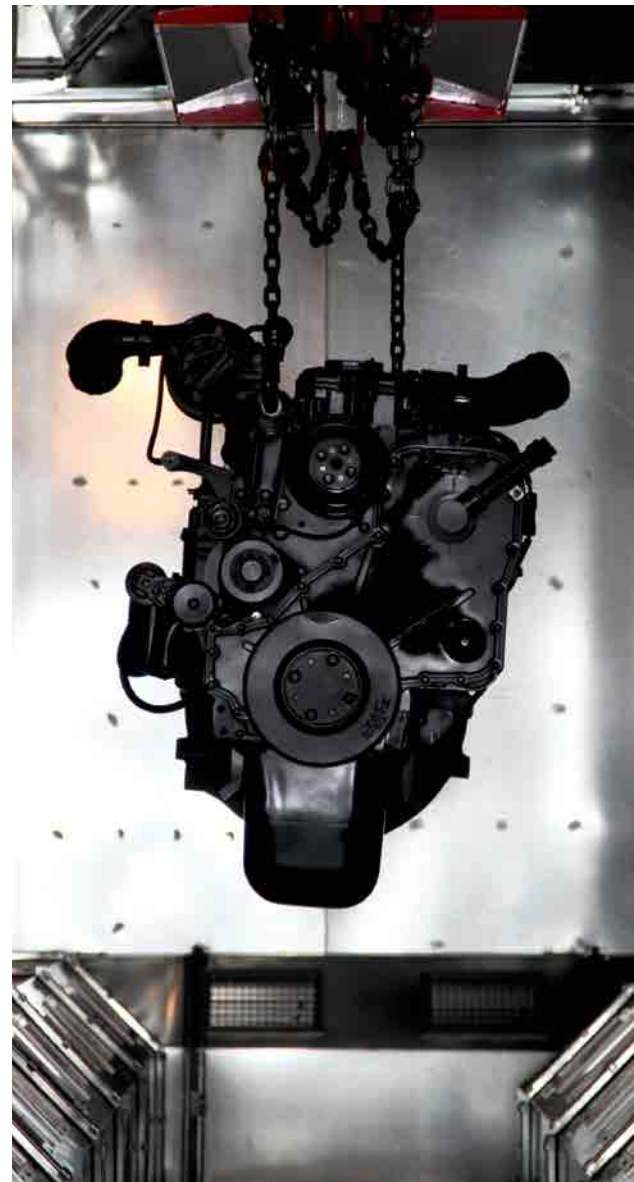
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**EDGE** MAGAZINE Vol. 40 | Autumn 2014

HYUNDAI EDGE is published and produced by Hyundai Heavy Industries Construction Equipment Division. It is distributed to dealers and customers around the world. For suggestions or questions, please contact marketing department of HCE at Mr. S.H.Hong (hsh8059@hhi.co.kr), Ms. Eunyoung Seo(eyseo90@hhi.co.kr) Tel. +82-52-202-7865/7977 Fax. +82-52-202-7979 www.hyundai-ce.com

# HYUNDAI CUMMINS ENGINE COMPANY

Hyundai Cummins Engine is newly produced by HCEC combined by the advanced technology of Cummins and productive capacity of Hyundai Heavy Industry (HHI). The new factory of HCEC located in Daegu, Korea has the most cutting-edge facilities among the global manufacturing plants of Cummins. HCEC not only improved quality of engine but also contributed to ecofriendly management by managing factory with solar energy. HCEC promise high quality engine, customer satisfaction and reliable service for you.



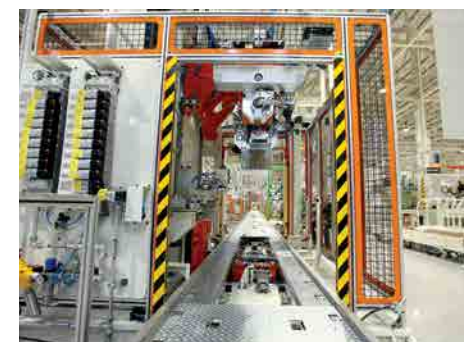
Engine	Applied Model	Rated flywheel horsepower(hp/rpm)
<b>HM 5.9 (B5.9) (Tier 2)</b>	R220LC-9S	150 / 1,950
	R210W-9S	178 / 2,000
	R260LC-9S	178 / 2,000
	HL757-9SM	173 / 2,200
<b>HM 8.3 (C8.3) (Tier 2)</b>	R300LC-9S	250 / 2,200
	R330LC-9S	250 / 2,200
	HL760-9S	215 / 2,200
<b>HE 6.7 (QSB6.7) (Tier 3)</b>	R140W-9	145 / 2,200
	R210W-9	173 / 2,200
	R210LC-9	155 / 2,000
	R290LC-9	220 / 2,000
	R235LCR-9	155 / 2,000
	R250LC-9	190 / 2,200
	R170W-9	160 / 2,200
	HL740-9	145 / 2,100
	HL757-9	173 / 2,100
	HL757-9S	
	HL760-9	215 / 2,100
	110D-7E	190 / 2,500
	130D-7E	
	140D-7E	
160D-7E		
<b>HE 8.9 (QSL9) (Tier 3)</b>	R380LC-9	280 / 2,000
	R430LC-9	
	HL770-9	280 / 2,000
	HL770-9S	



Factory of HCEC in Daegu



Inside of HCEC factory in Daegu



Inside of HCEC factory in Daegu

## Hyundai Heavy Industries & Cummins made a step for stronger partnership



**Danny Doh**

Director of Cummins Sales and Service Korea

Hyundai Heavy Industries (HHI) and Cummins have maintained a close partnership as a supplier and a client ever since the engines for excavators were first supplied in 1989. This article traces their close partnership for mutual development and introduces the future directions for further development.

Cummins first supplied 251 engines for excavators to HHI in 1989 and has maintained a close business relationship with HHI for 25 years to meet the stringent emission regulations worldwide and to provide better products. Cummins started supplying Tier 1 engines in 1999, Tier 2 engines in 2002 and Tier 3 engines in 2005. Cummins supplied 50,000 engines to HHI in 2007 and supplied the cumulative number of more than 100,000 engines in 2010. The cumulative number is expected to exceed 160,000 engines in 2014.

In June 2004, HHI and Cummins held the first HHI Global Forum to solve engineering issues and improve quality. Since then both parties have hosted local customer service meetings on a quarterly basis for improving quality and satisfaction of service in the construction engine and machinery market in Korea and abroad.

HHI offered to Cummins in 2010 to establish a 50/50 joint venture for a stable supply of engines in Korea which will in turn reduce the lead time. It took about two years to prepare and discuss the terms and conditions, and after a feasibility review Hyundai-Cummins Engine Company (HCEC) was established. It was the first step towards building a strong partnership. A total of 100 billion Korean won was invested to complete the engine factory occupying 78,045m<sup>2</sup>. A groundbreaking ceremony was held on November 8, 2012 and HCEC celebrated its first mass production in May 2014.

HCEC manufactures high-speed engines including HM 8.3 (8.3L Mechanical), HE 8.9 (8.9L Electronic), HM 5.9 (5.9L Mechanical), and HE 6.7 (6.7L Electronic) for construction equipment and power generation. The facility has the capacity to produce a stable supply of 50,000 mid-range engines per year for Korea and abroad, including the Chinese market. The successful joint venture of Hyundai and Cummins Engine not only secures the excellence and competitiveness of HCEC in the global market, it is also significant for Cummins as it has secured a base plant for high-quality diesel engines in Northeast Asia. HHI is confident that with Cummins Engine's collaboration, HHI can become a first class equipment manufacturer of high-quality HCEC and Cummins engine.



### CONEX Korea 2014

CONEX Korea 2014 was held in KINTEX, Korea, from September 24 to 27. The exhibition organized by KOCEMA (Korea Construction Equipment Manufacturers Association), is one of the biggest construction equipment exhibitions in Korea. The total exhibit space was 27,019 m<sup>2</sup> (indoor 21,384 m<sup>2</sup>, outdoor 5,635 m<sup>2</sup>) where Hyundai Construction Equipment (HCE) occupied an indoor booth area of 900



m<sup>2</sup>. Approximately 200 manufacturers from Korea and abroad participated and about 30,000 visitors attended. HCE introduced its products by displaying 13 of its models including mini excavator R35Z, main model of "Blue T Plus" series R140W-BP, R300LC-BP and new forklift model FOLEX 30D-9 and so on. Also HCE displayed Hyundai Cummins Engine and precision parts of HYMS (HYUNDAI Machinery

& Service) which is a subsidiary of HHI to promote reliability of HCE's component part. HCE hosted a variety of events at the show including the excavator manipulate simulator which attracted much attention from the visitors.

### Steinexpo 2014

Hyundai Heavy Industries Europe (HHIE) participated in Steinexpo 2014, which was held at Homberg, Germany from September 3 to 6 and had gained great local exposure. This year over 200 exhibitors participated and over 40,000 people visited the show. HHIE displayed R430LC-9A crawler excavator and HL770-9A wheel loader, and demonstrated the R800LC-9 large-scale crawler excavator and HL780-9A wheel loader in the quarry face demo area. HHIE focused on expanding dealer's network and conducted promotional activities to increase sales of large-scale excavators. Steinexpo is representative mining equipment fair in the European region. This fair is for leading manufacturers of construction machinery and it is held triennially.



### GaLaBau 2014

Hyundai Heavy Industries Europe (HHIE) took part in GaLaBau 2014, which was held in Nuremberg Messe, Germany from September 17 to 20 and achieved a great local response. This year over 1,150 exhibitors participated and over 62,000 people visited the show. The booth was operated in cooperation with Hyundai dealer IBS GmbH. HHIE displayed R125LCR-9A with hydraulic quick-coupler and "Radlinger" trench bucket, R60CR-9A with "Indexator" roto-tilt, 55W-9A with "Daemo" breaker and R25Z-9A with mechanic quick-coupler and bucket, and also demonstrated the R145LCR-9A crawler excavator. Through this show, HHIE successfully recruited new mini-excavator dealers for Germany and created sales leads for mini-excavators.





### New Arrival: Block Toy

Hyundai Construction Equipment (HCE) launched new promotional products. It's universal favorite, the block toy which received many people's interest during the planning stage. It was produced by Oxford Co., a global block toy manufacturer. Oxford Co., accurately depicted HCE's excavator 220LC and forklift in a miniature model without missing any details. In each box, there are approximately 300 pieces and a detailed instruction manual to help you build a masterpiece.

Products can be purchased on HCE website (<http://www.hceshop.com/>).  
E-mail address: [hoon@intermarket.co.kr](mailto:hoon@intermarket.co.kr)



### Sales Training for South American dealers' sales personnel

Sales Training for South American dealers' sales personnel Sales Training of Hyundai machine for South American dealers' sales personnel was successfully progressed. This training was conducted in Medellin, Colombia from September 3 to 4 and 11 dealers from Center and South America attended. Through this conference dealers could learn strong points and main sales points of Hyundai Construction Equipment (HCE)'s equipment and characters of major competitor's equipment and how to target them. This training aims to promote sales in Central and South America and strengthen capability of dealers.



### Sales Strategy Workshop

Hyundai Construction Equipment (HCE)'s overseas sales department held a workshop on July 22. Mr. Koo Ja-jin, COO & Senior President and about 40 overseas sales staff participated. The department analyzed emerging export market and checked their present sales results. This Sales Strategy Workshop was held in order to check its goals of world market trends and plan an outlook for the second half of the year. They discussed development strategies for the Middle Eastern countries including the Saudi Arabian and South African markets and talked about the present condition of Asia, Mexico and Russian markets and exchanged their opinions about plans for expanding the sales network in these areas.



### Water purifier and cooler donation

On July 18, 2014, Hyundai Construction Equipment India Pvt. Ltd., Pune; donated a water purifier and a water cooler with a 40-liter capacity, to a local school in Khalumbre, where Hyundai plant is located. This will provide clean and hygienic water for the school children throughout the year. Besides the donation, the volunteers organized Korean song and dance competitions, games with about 250 students of different age groups and Origami session – paper craft art for the standard 4 to 7 students. The children enjoyed every session as they participated wholeheartedly in everything that came their way including snacks and refreshments. After the activities three needy students from each class were selected and a haversack was presented to each of them. The event truly connected Hyundai philanthropy, its employees and the associates who want to make a difference to the society we live in.

-This article was submitted by HCE India

### Reaching out to landslide victim

On July 30, 2014, a natural disaster struck Malin village, Pune, around 100km away from Hyundai Pune plant. The entire village was buried under a massive landslide caused due to heavy rains in Pune district during the last week of July. About 250 people are feared to be trapped of which 134 bodies have been recovered so far. As part of Hyundai Corporate Social Responsibility, a team comprised of 10 employees from HHI travelled to the village on Friday August 1, 2014 to render aid. The team distributed first aid kits and provided around 1000 food packets and drinking water to the victims, survivors and the rescue teams. Hyundai excavator was also pressed into service for the rescue operation as needed by the local administration. Our efforts were highly appreciated by the local community, the rescue teams and the government agencies.

-This article was submitted by HCE India



## Hyundai Heavy Industries Wins USD 1.94 Billion Offshore Order in UAE

Hyundai Heavy Industries (HHI) announced today that it received a Letter of Award (LOA) for a USD 1.94 billion order for the second package of the Nasr Full Field Development Project to build the fixed platforms and to lay subsea cables from Abu Dhabi Marine Operating Company (ADMA-OPCO) on July 7, 2014. As per the LOA, HHI will undertake engineering, procurement, construction, installation and commissioning work for the super complex comprising a gas treatment

platform, a separation platform, an accommodation platform; laying 144 km subsea power and 55 km infield cables; and modifying an existing manifold tower and two well-head towers in Nasr oil field, 130 km north-west of Abu Dhabi, UAE. Upon completion by the second half of 2019, the facilities will increase the daily oil production capacity of the offshore field to 65,000 barrels from the current 22,000 barrels.



## Hyundai Heavy Unveils 2,000 hp Air Compressor

Hyundai Heavy Industries (HHI) today unveiled its own model of 2,500 hp air compressor (Model No. HTC2500) at its headquarter in Ulsan, South Korea. HHI has worked on developing a range of air compressors since 2011, and the company gained a foothold in the air compressor market in May 2014 by supplying the complete air compressor package including three units of 1,500 hp air compressors, a pump and an air dryer to its shipbuilding affiliate, Hyundai Mipo Dockyard (HMD). An air compressor is a device that converts power into kinetic energy by compressing air. It is commonly used for a wide range of industrial purposes, such as manufacturing cars and op-



erating power, oil and gas plants. HHI's newly developed 2,500 hp air compressor model features high compressibility, noise and surge control, and more than 20 years durability. The world's largest marine engine maker plans to further expand its air compres-

or models by completing the development of 600 and 900 hp models within this year. With an annual production capacity of more than 200 units of air compressors, HHI aims to secure USD 13 million worth new orders for this year.

# AESTHETICS OF TUNING

**Moon Weon-sik**

General Manager of Design Verification Department



"Design Verification Department repeat repetitive movements thousands times to test operability, convenience and fuel efficiency etc. The needs of the customers working in construction sites around the world are very diverse. Some prefer powerful equipment, and others prefer economic ones. To satisfy these needs tuning engine and hydraulic parts and increasing equipment's completion are my job."

Mr. Moon Weon-sik, general manager of Design Verification Department is veteran in construction equipment field. It's been 21 years since he entered Hyundai Construction Equipment (HCE). Mr. Moon majored in mechanical engineering likes logical things. He said experimental work fits him best. Because in this field the harder you work the better the results will be.

Numerous excavators, wheel loader, forklift, back-hoe loader and skid loader developed by HCE are showing their ability at worksites around the world.

"Proto equipment designed by the development department goes through a strict test before it is sold to the customers. I think reliable test makes high reliability equipment at the worksite. Our test department not only checks the completed product it also runs environment test, fatigue test, endurance test, electromagnetic waves test and so on. We have a strong sense of responsibility about our work because small mistakes may lead to huge losses on the customer's side." Sometimes his strong sense of responsibility makes him stressed out. But it is also a good stimulant for him.

"When I formulate many hypotheses and gradually lessen the number of cases, the solution appears even when the problem cannot be easily solved. That's the moment when my stress turns into endorphins. When the equipment receives good reputation at the worksites, it brings great pleasure to me and my team members."

Tuning means checking/inspecting equipment. Tuning is raising equipment ability to performing well beyond customer's expectation. Well tuning is that analysis customer's needs thoroughly not to be one-sided, and reflect to equipment.

Mr. Moon manager of design verification department says the equipment he tested is like his own children. Just like parents who nurture and care for their children hoping that they will have a bright future, Mr. Moon also hopes the Hyundai equipment he tested could gain good reputation and in turn help the customers generate profit in their businesses. The worksite is always hit by strong sea breezes. Even working under such harsh environments his passion to make highly reliable equipment never dies.



### Tasks of Design Verification Department

- Performance Test for New Models
- Vibration / Noise Test
- Component Feasibility Test
- Durability Test

# VIP TOUR & DEMO SHOW 2014

## Information of VIP tour 2014



The VIPs from all around the world toured Hyundai Heavy Industries (HHI)'s shipyard and construction equipment factory in Ulsan. The guests were very impressed with the production facilities in the factories and the construction equipment show in Eumseong, which won much applause from the crowd. The guests also had a chance to test drive Hyundai Construction Equipment (HCE)'s equipment including mini crawler excavator. After the tour, the guests were treated to Korean traditional foods and enjoyed various events. These VIP tours provide a good opportunity to enhance the relationship between HCE and its dealers and customers.



## Interview with Dealers and Customers



**Basak Oktas**  
Dealer from Turkey

It was a perfect show. I love Hyundai because of its excellence in technology and friendly staff. Thanks for everything.



**Niels Donckers**  
Dealer from Belgium

It was just amazing! I'm very interested in this show. I would like to try one of the Hyundai machines. Also I had a really great time during this tour. Thanks for inviting.



**Simon Sivyer**  
Customer from UK

It's been a very good trip. I'm very pleased to be here. Many customers trust in Hyundai machines more through this trip. They will continue to be loyal and buy Hyundai's products.



**Leach Warwick**  
Customer from New Zealand

The show was dynamic and impressive. I could feel the strength of Hyundai machine. It's a really good trip for customers. Everybody enjoyed the trip. I would recommend it to other dealers after going back to our country.

# EQUIPMENT NEEDS AND CHALLENGES IN SHALE PRODUCTION

Four seasons equipment & highway equipment company



In May, Standard & Poor's managing director said that the United States' anticipated energy self-sufficiency by the end of this decade would directly result from the oil and gas produced from shale plays. As a leading manufacturer of heavy equipment used in everyday life in this booming industry, we wanted to get a closer look at the outlook for shale gas, the specialized equipment needs that shale development requires, and the maintenance and service challenges that occur out in the field. We turned to two of our dealers that specialize in equipping customers working in the shale gas industry – Four Seasons Equipment in North Dakota, and Highway Equipment Company in Pittsburgh, Pennsylvania.

"The equipment rental business in the Marcellus and Utica Shale plays in Western Pennsylvania and Ohio is incredible," says Al Springer, sales and marketing director of Highway Equipment Company in Pittsburgh, Pennsylvania. "In 2012 there was a slowdown in gas drilling and related construction work until the midstream sector could catch up with the supply of natural gas and liquid natural gas. Nineteen new natural gas and natural gas liquid processing plants have been or are currently being built in Pennsylvania and Ohio." Brad Brousseau, vice president of operations for Four Seasons Equipment, North Dakota, serves the oil and gas industry in the Bakken region and says new leases are being opened up every day, with a backlog of wells waiting for completion. "We are seeing strong demand for equipment. Our customers in the shale production industry are coming to us for Hyundai excavators in the 20 to 30 ton category (R210LC-9 and R250LC-9), and 4 cubic

“  
The equipment rental business in the Marcellus and Utica gas shale plays in Western Pennsylvania and Ohio is incredible,  
”

yard wheel loaders (Hyundai HL760-9A.) "The three most popular sizes of Hyundai excavators used by the Marcellus and Utica Shale gas contractors are the Hyundai R380LC-9 (84,220 lb.), Hyundai R290LC-9 (64,600 lb.) and Hyundai R210LC-9 (48,460 lb.)," says Springer. "When they need a wheel loader they select a Hyundai HL740TM-9 with bucket, standard forks and pipe and pole forks." The attachments required for gas drilling and related work can be just as important as the machines themselves. Four Seasons is equipping most of its excavators with a hydraulic quick coupler that allows the operator to quickly change buckets and other attachments such as compaction plates, compaction wheels, cleanout buckets and hammers. Wheel loaders are being equipped with hydraulic quick couplers, 96 inch pipe forks, buckets and extend-booms. "The increased focus on safety in this region has seen the demand increase for multiple, spe-

cialized products," says Brousseau. Specialization and customization are also important in the Marcellus and Utica Shale plays. "Due to the rugged terrain that these excavators are working in throughout Western Pennsylvania and Ohio, excavators require single grouser bar track pads," says Springer. His dealership also equips Hyundai excavators and wheel loaders with several special attachments, investing in keeping them in stock to equip his large rental fleet so his customers don't have to wait for an attachment to come in.

Another challenge that shale gas contractors and equipment dealers face is maintaining and servicing their heavy equipment in the field. To start with, it can be difficult to locate the piece of equipment that needs work. "Just finding the project where the equipment is being used is a challenge," says Springer. "These projects are in the middle of nowhere. Hyundai's Hi-Mate System with GPS helps us tremendously. We not only know where the machine is working and how to get there, but we also know when it is time for all the service intervals."

Our proprietary Hi-Mate Remote Management System allows operators and dealer service personnel to access a machine's vital service and diagnostic information from anywhere via internet access. Hi-Mate users can remotely monitor daily reports outlining a machine's location, working hours, fuel consumption and any periodical maintenance needed, drastically reducing downtime and saving the owner time and money.

-This article was submitted by HCEA



# CHUNG AND THE FIRST ORDER



**Chung Ju-yung**  
Hyundai Group Founder

How Chung Ju-yung used a 500 won bank note to found a shipbuilding empire.

He is tired, for he has travelled halfway across the world. But he senses victory, like a tiger that has finally caught the scent of his prey and is savouring the meal to come. This persona also keeps his workers, the best workers in the world, on their toes.

He feels a heavy sense of responsibility and honor, not only because of the risk to the company he has spent most of his life building should he fail, but also to his fellow Koreans and the hopes his people have put into his audacious scheme. It is his duty and a point of honor to help his country succeed in its industrialization.

It is this sense of duty that had led Chung Ju-yung from rice delivery boy to building Soyang Dam. Fondly he remembers the chief negotiator from a rival bidder questioning his knowledge of dam construction techniques.

Here was this upstart who had barely managed to graduate from elementary school challenging the expert opinions of both his own government and graduates of Tokyo Imperial University with years of dam construction experience. The audacity of this man to suggest that not only could his company build the dam at a much lower cost, but that it would also be better from a national security perspective to use his suggested construction method, should North Korea decide to bomb or airstrike it.

This past victory quickly vanishes as he finds himself gripping the arms of the chair he is sitting in, waiting for the meeting

that may well decide the fate of his company. Waiting to meet representatives of Barclays Bank, he is nervous, but this is merely one of the last hurdles that need to be overcome. He plunges a hand into his trouser pocket and fumbles briefly. Is the 500-won note still there? He feels the creases and wrinkles on this useless Korean note. Would he be able to exchange it for the local currency? Would bankers in London even know where it is from?

Chung had faced hostile negotiators before. First, there were the Japanese companies. All save one had outright refused to even talk to the Korean upstart. This was not altogether unexpected as they saw no need to create a competitor where there was none. The one company that came to the negotiating table would help Chung build his ships but only if the new shipyard limited its construction capacity to the far less lucrative 50,000 DWT vessels and the Japanese company had the right to oversee all projects. How could Chung return to Korea with a deal which to him felt far too reminiscent of Japan's colonial rule?

Instead, he decided to rely on his reputation as much as possible. Using the Korean government's Second Five-Year Plan for industrialization, Chung bought land in Ulsan for a future shipyard. He then signed up the engineering firm Appledore & Scott Lithgow for the new venture. Now where to find that USD 63 million in financing to get the project started? Hyundai could raise USD 10 million, and the Korean government would match that amount with another USD 10 million. The remaining USD 43 million was more

than all of Hyundai's assets. The French and Swiss bankers would have nothing to do with him, some even ridiculing his proposal as that of a Third World dreamer. The British, on the other hand, would at least listen to his grand proposal.

"Not no, just not likely" was the response from Barclays Bank. Their caution was not unexpected; Chung had requested a loan to build a shipyard and several ships with little more than his word as backing. Though he had delivered on everything he had promised thus far, the bank doubted he would be successful in building ships and a shipyard at the same time.

In 1952, President Eisenhower wanted to visit Busan's UN Memorial Cemetery to honor the soldiers that had fallen during the recent war effort. Army commanders panicked: the normally green cemetery grass was now brown and unkempt as it was the middle of winter. Chung's solution of trans planting 30 truckloads of barley shoots not only ensured the official trip went smoothly, but it also earned the army commanders Eisenhower's compliment for the care they had given to the cemetery.

By 1957, Chung's construction company had built 5 bridges across Han River, receiving the national recognition it deserved. In 1965 the company began building the Pattani-Narathiwat Highway in Thailand. Korean workers leaving for an overseas work site was a point of immense national pride. He remembers telling an interviewer the experience was like a frog who had lived his entire life in a well and had now finally gotten the chance to see the rest of the world. While the highway was not as great a financial success as hoped, Hyundai had learnt how to compete on a global market and how to meet world standards. That project also led to his first face-to-face meeting with Korea's president, and from there the two visionaries embarked on literal nation-building through the Seoul-Busan Expressway. In 1968, Hyundai workers were dodging bullets in Vietnam while they were dredging the Mekong River. And the Soyang Dam project is on schedule to be completed on time and at almost 30% below original estimates.

Despite this track record, the bank had cited Korea's own shipbuilding association's conclusion that the country was incapable of building ships of the size Chung had planned. Chung replied that if other Korean shipbuild-

ers thought it were possible then they would all be vying to undertake this venture, and so their conclusion that it isn't possible is obvious. The bank eventually relented and agreed to listen to a recommendation from Hyundai's engineering partner, Appledore & Scott Lithgow. Now the challenge was to convince Appledore of the soundness of his plan. How could he convince his colleagues that he could do as he promised, when they believed it was impossible? Appledore's executives said that even if he were to get a loan for a shipyard and complete the construction of the ships, Chung would still need to find buyers for the kinds of ships he wanted to build.

“

He remembers telling an interviewer the experience was like a frog who had lived his entire life in a well and had now finally gotten the chance to see the rest of the world.

”

Was the 500-note still in his pocket? The note! On the reverse side of the bill is a picture of Korea's famous turtle ship, the geobukseon. How could he have forgotten this? Every Korean knows the story of Yi Sun-sin and the turtle ships. The Japanese forces under Toyotomi Hideyoshi began their invasion of Korea on 24 May 1592 with the capture of Busan. By July, Hideyoshi's armies had forced the royal family to flee the capital for Pyongyang. Launching his second naval campaign to cut off the invading armies supplies on July 8 near Sacheon, Admiral Yi unleashed his newest weapon, the geobukseon. In his previous engagements with the Japanese naval forces Yi had seen that they primarily relied on fire arrows and boarding tactics as their ships were practically devoid of naval guns. To counter this threat, Yi took the already for-

midable Panokseon warships and outfitted as many as he could with iron-spiked decks. In effect, Yi created the first iron-armored warships, centuries before other countries started building them. Using this claimed that once Koreans get started their enormous potential would emerge.

With Appledore now on board, Chung could go back to Barclays for the loan. But before Barclays would make a loan, the Korea Export-Import Bank had to insure the loan with an export credit guarantee, and for that to happen Chung would need to find a buyer for his ships. Through his colleagues at Appledore, he was introduced to George Livanos, a Greek shipping tycoon. He showed Livanos the drawings of his shipyard and the 260,000 DWT oil tanker he wanted to build there. Impressed with his audacity and commitment, Livanos ordered two such tankers at USD 31 million each, with a down payment of USD 2 million. The condition was that Chung build exact replicas of a ship that had been built at the Scott Lithgow shipyard in Scotland. Barclays Bank could now form a consortium of European banks to lend Hyundai the USD 50.5 million needed for the venture. Armed with an order and the "can do" reputation Hyundai had built in Korea and overseas, Korea's government guaranteed the foreign loans and ensured that Chung focused on building the biggest shipyard in the world.

-By George Deftereos  
The writer is a copy editor of *New Horizons*.




# HYUNDAI MACHINERIES EVERYWHERE

Please send pictures you wish to share. Gift will be sent for selected pictures.

Picture Files 1600 x 1200 pixel files are recommended(or higher than 3 MBs)

Send to: [eyseo90@hhi.co.kr](mailto:eyseo90@hhi.co.kr)



 **R520LC-9S in Russia**  
from Spirin Vitaly



 **H930S in South Africa**  
from Peter Colling



 **HL780-9A in the Netherlands**  
from Nico Jacques



 **R520LC-9S in Laos**



## ALONG WITH THE PICTURE, PLEASE INCLUDE:


1. Sender's name / address
2. Model of the equipment
3. Equipment location and its operation

*Selected pictures may be used in promotional products or prints by Hyundai Heavy Industries, CO., LTD hereafter*



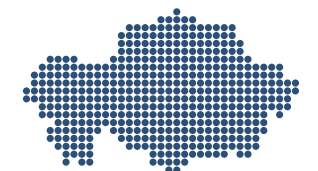
**250D-9 / 220LC**  
You can choose one of these block toys



 **HL780-9S in Mexico**  
from Gerardo Ramirez



 **R210W-9S in Kazakhstan**  
from Serik Ziyadin



 **R800LC-9 in Dubai**  
from Tony Cho



 **R480LC-9S and R520LC-9S in Tunisia**  
from Debbeche Nizar





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## 220LC-9S

HYUNDAI's excavator R220LC-9S, with enhanced Convenience, Safety & Economy. Enlarged cabin size is built for operators. The safety of operator is improved by thick tubing structure of cabin. The newly designed cabin was conceived for more space, a wider field of view and operator comfort. Furthermore, R220LC-9S features reduced fuel consumption. High efficiency of hydraulic system reduces operating costs.

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