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TAMAGAWA NEWS

Report from the 80th Foundation
Anniversary Ceremony

2018.9
Vol. 21

The Second History Hall Opened!

TAMAGAWA
Topics

Topics

- ① Gold Award granted from Boeing
- ② Dug and found! Drawings in war time
(Final episode) - the second gyro wheel
- ③ New Face!
Iida Ringon "Tamagawa-ren"



Tamagawa

The cover of this number



Erraldoiak of Tolosa

"Iida puppet show festival" is celebrating its 40th anniversary this year. The special guest, "Erraldoiak of Tolosa" was demonstrating throughout the town.

A traditional street-show essential for various festivals held in "Tolosa," Basque in Spain.

Giants called Erraldoiak, 4 meters in height and 60 kilos in weight, carried each by one adult demonstrated rhythmical turns and steps with lilts.

Buruhandiak, the large heads with heavy head-mask of 15 kilos entertained visitors by giving high-fives with them.

Tastes from the region

An old store established 97 years ago. Craftsman's pride, "Otafuku-mame" by Syungetsu

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The Second History Hall Opened!

— The second Hall of history was opened.

New product information

New sale of TUG-NAVI JET Series



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- ② Dug and found! Drawings in war time (Final episode)
- the second gyro wheel -
- ③ New employees, Iida Ringon "Tamagawa-ren"

Inquire in and around Iida-city

No.21 Shinshu Inaji, Roadside station "Hana no Sato Iijima"

Events / Exhibition information

- 01 TECHNO-FRONTIER2018 The 36th Motor-tech exhibition
- 02 ILA BERLIN 2018

Tastes from the region

An old store established 97 years ago. Craftsman's pride, "Otafuku-mame" by Syungetsu

Traditionally, black color has represented good health, and the word derived from beans means faithfulness in Japan.

Work faithfully in good health - "Otafuku mame" by Syungetsu is a product that brings you happiness.

Carefully selected large, fleshy broad beans are each judged by experienced craftsmen. Wholeheartedly stewed beans taste wonderful.



Made with broad beans, ground water of South Shinshu, and caster sugar only, no additives such as preservative and colorant. Enjoy the original tastes of the ingredients. The store also sells various kinds of stewed beans, braised carp, and salted and dried or candied trout.

Why don't you try the specialty from the long-established store in Iida?



●ontact / Order

Shinshu / Iida Syungetsu

<Shop> 40 Tokiwamachi, Iida city, Nagano 395-0033 <Open> 9:00 - 17:30 (Weekdays & Saturdays) Closed: Mondays

Website●<http://syungetsu.co.jp>

syungetsu.co.jp [Search](#) * Website in Japanese language only

E-mail●otafukumame@syungetsu.co.jp

Report from the 80th Foundation Anniversary Ceremony

The 80th Foundation Anniversary Ceremony was held at the HQ of TAMAGAWA SEIKI Co., Ltd. on Saturday, March 3. At the ceremony, Mr. Hiroyuki Hagimoto, Chairman & C.E.O., and Mr. Shigeo Seki, President, delivered their congratulatory address to the directors and employees, and the guests from the cooperative companies, etc.



— Congratulatory address by **Hiroyuki Hagimoto**, Chairman & C.E.O. —

Today, I am so glad that our company can celebrate the 80th foundation anniversary. I owe it to all of you; subcontract factories, processing sections, Tayu-kai, and our employees. Thank you very much. When I look back on these 80 years, the days of the founder, Hiroichi Hagimoto, and the second president were the time to “produce and grow technology,” and the days of the third president were the time to expand the company scale, which led the company to become “The World-class TAMAGAWA SEIKI.”

Now, the fourth president is managing the company. We would like to broaden the product line-up all over the world based on the foundation established through these 80 years. Let us work together hard toward the 90th and 100th anniversaries.



— Congratulatory address by **Shigeo Seki**, President —

I was appointed as the fourth president four years ago. Last year, we achieved our highest ever turnover and ordinary income. Thank you very much for your cooperation for these accomplishments.

We have been dealing various businesses including servomechanism components, mobile components, Military Defense, and space.

Based on them, we would like to expand our business for the future.

It has been about 20 years since we entered the automotive field. In

these years, our business scale has been widened, and electrically-motorizing of vehicles has been enhanced. Demand for brushless resolvers (Singlsyn) will be drastically increased in the future.

We are manufacturing this item at six bases including overseas bases, and more bases are planned to be built.

The world will be changing drastically as never before; vehicles will be electrically powered, more IoT and AI technologies will be widely used.

Under such a circumstance, I believe our company possesses the great capacity to achieve unprecedented growth, and the market in the future is full of opportunities.

Speed of the change will be increased more and more, and the struggle for existence will be fiercer. However, I would like to have your cooperation to keep our company grows stably, aiming at the 90th and 100th anniversary.

“The 80-year history of TAMAGAWA SEIKI” was issued.

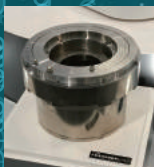
With the subtitle of “Ten years of innovation and evolution 2008-2017,” this summarizes the major events per year since the 71st anniversary to the 80th.

Up until now, the 60-year history and the 70-year history have been issued and delivered to the entire personnel. These books became the common guidebooks to know the foundation established by our precursors.





Highlights



Multi-speed resolver with the bearing accuracy of 0.01 seconds that supported ALMA radio telescope model.

ALMA is a large-scale radio telescope set in the Atacama desert, Chile, with 66 high-precision parabolic antennas. They are used as a unit of radio telescope for the international joint project. Our multi-speed resolver is selected because it provides high precision while being applicable in wide operating temperature limits and resistant to cloud of dust from the desert.

Highlights



The history of the last two decades is the history of facility-expansion including plants. The arch-shaped video screen in the back will show you the aerial photography of the offices and plants established during the decades and the major events experienced with full of realism.

Highlights



(HONDA IMA System / CIVIC) Hybrid vehicle was first released in 1997, and other automobile manufacturers followed. Our VR type resolvers (Singlsyn) were installed as an essential sensor, and enjoyed 100% share in the market.

Extra

Both are revolving, but...

Similar appearance of the 1st and 2nd History Halls.

On each façade, the monuments of the wheels of large two-wheeled carts used for shipping products at the time of establishment of the business and Singlsyn, our representative hot seller for these two decades are put up.

Both have the similar circular shapes, but here again, you can see the transition of the time.



New product information

TUG-NAVI JETSeries

TUG-NAVI stands for **T**amagawa **U**nder **G**round **N**avigator, a borehole deviation measurement system measuring the track of every pipeline installed under the ground using a gyroscope and an accelerometer.

Miniaturization was realized for the new product "JET series" by changing the gyroscope to the MEMS type.

The caliber became smaller comparing to the conventional model by 50% or more.



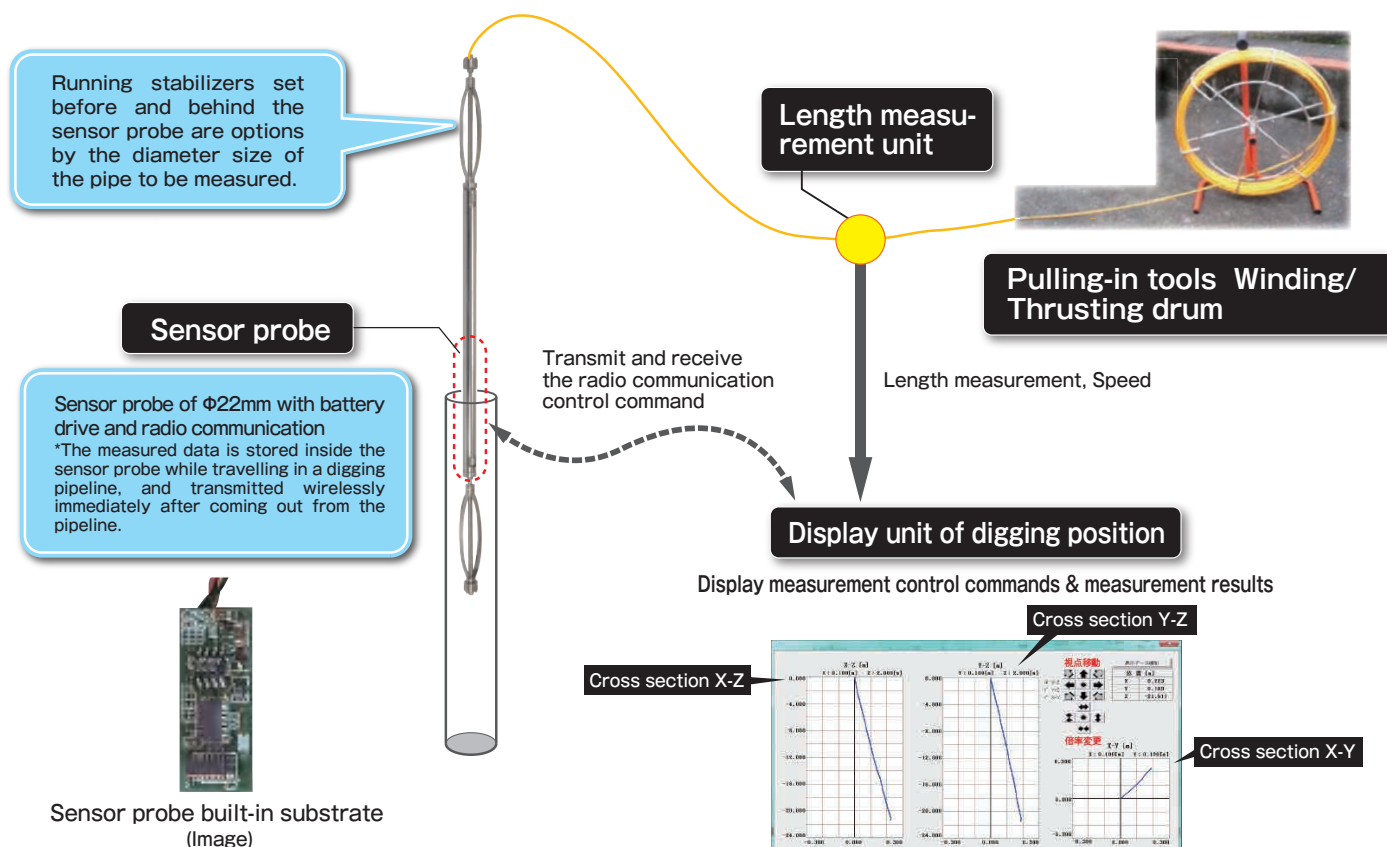
Characteristics

- Even a small tube can be measured by the scope of $\Phi 22\text{mm}$ caliber.
- Shock resistance was increased by using the MEMS gyroscope!
[Shock resistance: 500G (1ms)]

Application example

- Strain measurement of landslide observation pipes
- Vertical magnetic prospecting at the place unexploded bombs are buried
- Construction management, etc. of the digging tubes at soil improvement works, etc.

Configuration image



Gold Award granted from Boeing

The Boeing Company, an aircraft manufacturer in the U.S., is awarding the suppliers every year based on their on-time delivery rate, quality, contribution, etc. In the selection in the FY2017 (Oct.1-Sep.30), TAMAGAWA SEIKI Co., Ltd. received the Gold Award for the first time. Boeing has about 13,000 suppliers worldwide, and we are one of the 85 companies that received the Gold Award.

We entered the market of civil aircraft accessories in 2005, and concluded the direct deal contract with Boeing in 2013 which had been one of our goals for a long time.

Now, we are continuously delivering Two-form RVDT cluster for B737MAX, etc. to the company through developments after our products were adopted on the Tier-1 ground.

It has been about 3 years since we established the corporate headquarters for civil aircraft business. The satisfactory status was achieved through our steady efforts like gathering the divisions of design, materials, production control, QA, and sales on the same floor, forming our unique management system, and conducting improvement activities. From the FY2018 on, we will keep striving for the expansion of our business with Boeing and other aircraft companies, as well as receiving the award continuously.



The site of 2017 Global Supplier Conference held in Portland, U.S. on Apr.10 & 11, 2018



Standing by the list of award winners
Gold Award winners are written in yellow.



RVDT cluster for B737MAX





Excavation!

Introduction of drawings from the Pacific War. (Final episode)

—The second gyro wheel (Drawing of the trial gyroscope of Norden-type bomb sight) —

When dismantling one of the old company buildings, 70 to 80 blueprints for parts to be mounted on Former Japanese Army fighter jets etc. were uncovered.

This time, we will show you the drawing of a trial gyroscope that was made when the Norden-type bomb sight was disassembled and inspected.

Since the world war 2, the Norden-type bomb sight produced by the Norden Co. was installed on the U.S. bombers. The device was treated as the national top secret, because it was using extremely advanced technologies where the optical sight was linked with an automatic pilot through an analog type computer.

Bombers with this device showed a high hit probability, so the old Japanese armed forces took out the bomb sight from the captured aircraft, and commanded our company to copy the gyroscope part to make a prototype.

The reason why our company was selected was that the founder, Hiroichi Hagimoto, was working for Hokushin Electric Works Ltd., a manufacture of aircraft/nautical instruments, before establishing the company. He was in charge of designing the gyroscope built in Midget submarine for attitude control.

The principle of the gyroscope is a top type, which was the mainstream in those days. The drawing found in our company is showing a part of the gyro wheel (Figure 1).

The bomb sight consists of an optical sight and an automatic pilot. Two units of the "gyro wheel" were installed; one was to keep holding the optical sight vertically, and other was to keep the direction of the aircraft under automatic controlling. (Figure 2)

The optical system was produced experimentally by Nippon



A trial model of gyroscope gyro wheel possessed by our company

Kogaku Kogyo, (current "Nikon Corporation") which was evacuated to Matsuo Elementary School in Iida city. Both prototypes were delivered to Nakajima Aircraft Company; however, the war was over before the products were completed. Although the gyroscope of a bomb sight was not completed during the war, our company was again involved with producing gyroscopes in less than 10 years after the end of the war. Now, we became a manufacturer dealing gyroscopes with various mechanisms including an oscillatory type, fluid type gas rate gyroscope, optical type fiber optic gyroscope, and ring laser gyroscope, as well as a top type, and also producing attitude control devices using such gyroscopes.

In addition to the Aero-military defense field, our targets have been expanded; including the markets of attitude control devices for small satellites, car navigation system, attitude control devices for cameras, measurement of pipelines, etc. The gyro technology started from copying the product of the Norden Co. has thus grown to the core technology of our company.

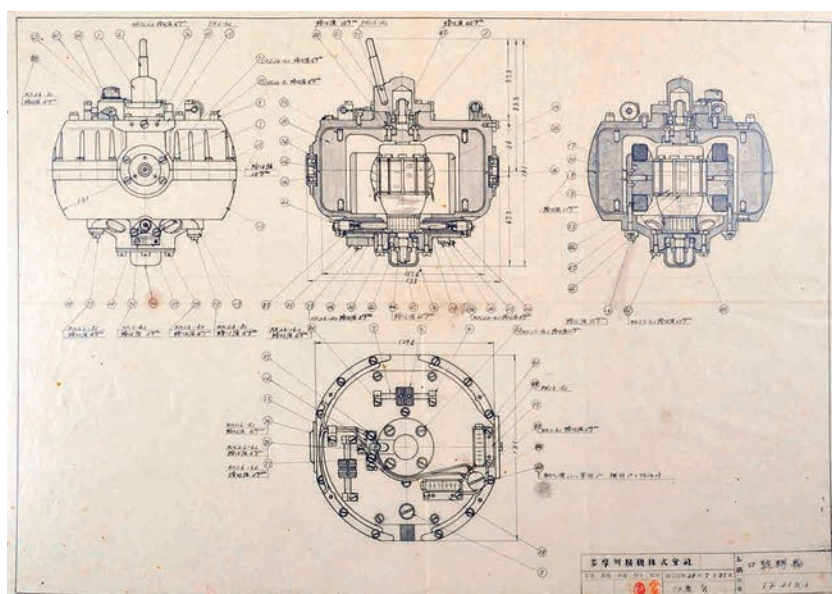


Figure 1

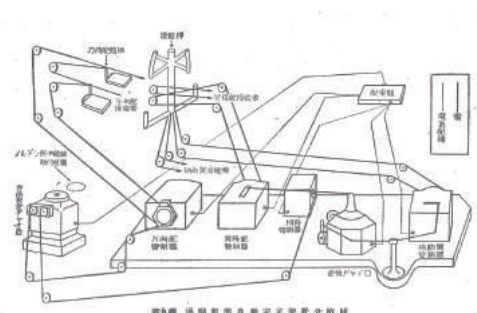


Figure 2 (Source: Koku Asahi)

This is the final episode for this series. This year, we are celebrating the 80th foundation anniversary. I somehow feel it is deeply related that the drawing prepared at the time of establishing the company was found at this timing of celebration, which led to focus on the starting point of TAMAGAWA SEIKI again.

New Face!



My name is Tomoya Shimizu. I have been stationed at Osaka service office of Tamagawa Trading Co., Ltd. from April 1, this year.

I was participating in the induction course until the mid-May, and now, I am learning business activities accompanying my superiors and seniors of the same office.

"Complete devotion" is my favorite phrase, and I will do my best exactly as stated when I have a chance to take charge of a client. Thank you very much for your support in advance.

Iida Ringon "Tamagawa-ren"

Iida Ringon, a civic festival, was held on August 4 in the city area of Iida. It was the 37th year this time. As usual, TAMAGAWA SEIKI group joined the festival as "Tamagawa-ren."

"Kyoryokukai-ren" was followed by "Tamagawa-ren," which was composed of the staff members from our cooperative companies in the parade. We thus enliven the festival every year in large numbers exceeding 500 participants.



Tour of Iida City and Its Neighborhood

No. 21

Iida city is a castle town situated at the southernmost of Central Alps and referred to as a little Kyoto in Minami Shinshu. The area is a place with scenic beauty filled with clean air.

This time, let us introduce you a roadside station in Iijimamachi, about 20km away from Iida city toward the north.

Shinshu Inaji, Roadside station "Hana no Sato Iijima"

"Roadside station Hana no Sato Iijima" is in Iijimamachi, located between Komagane-city and Matsukawamachi in the south part of Nagano prefecture.

The visitors can enjoy the magnificent sight of Central Alps and South Alps and see the polishing process of rice using a newly constructed water mill.



The rice polished there is sold in the roadside station as "Water-mill rice." Frictional heat generated is lower by

a water wheel than machinery, so, you can enjoy the richer taste of rice.

This roadside station is also popular among the local people, as the producers bring in fresh vegetables and fruits every day. There is a flower shop under the direct management of the station, which is very rare throughout Japan.



As the local specialties, we recommend Soba noodle using the buckwheat produced in Iijima, horsemeat dishes, and apple pies using apples produced in Shinshu.

If you have a chance to come to Minami Shinshu, why don't you visit the roadside station to enjoy the splendid view and the fresh vegetables and fruits?

Opening hours ● 9:00~18:30 (Apr. - Oct.)
9:00~17:30 (Nov. - Feb.)
9:00~18:00 (Mar.)

Open 7-days a week (Except for new year's holidays)

[Contact] Shinshu Inaji, Roadside station "Hana no Sato Iijima"

2252 Nanakubo, Iijimamachi, Kamiinagun, Nagano, 399-3705

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<http://hananosato-ijima.jp/>

Michinoeki Hananosato Iijima [Search](#)

Website in Japanese language only.

Information

Events / Exhibition information

01 TECHNO-FRONTIER2018 The 36th Motor-tech exhibition

The exhibition was held from Wed. April 18 to Fri. April 20 at Makuhari Messe.

We exhibited our products using the space of 12m x 3m at "the Motor-tech Exhibition" held in April at Makuhari Messe. That was a specialized technology exhibition where most advanced/optimum solutions for "motors" indispensable to every field and application, from the precision equipment to industrial machinery, were gathered.

We presented our complete product line-up of motors and sensors; including AC servomotor / drivers, step motors, rotary encoders, and MEMS IMU.

Following the iREX Exhibition held in November last year, we again presented "Torque servo module" of the servo actuator for driving the joints of various types of robots as a reference exhibit, which drew interest from a lot of visitors.

At the site, we had opportunities to know various problems that our clients have. We are proceeding with business activities every day to solve their problems with our technology of motors and sensors.

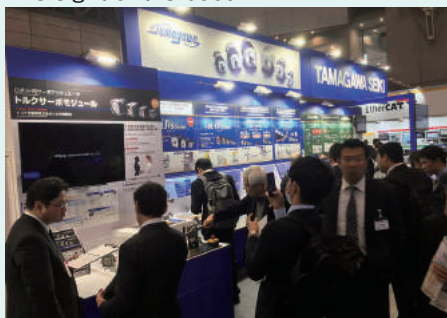
Demonstration of Rotary encoder



The space for Torque Servo Module



The sight of the booth



02 ILA BERLIN 2018

The exhibition was held from Wed. April 25 to Fri. April 29 at the Berlin Expo Center Airport, Berlin, Germany.

Innovation and Leadership in Aerospace (ILA) BERLIN is one of the most famous airshows in the world as well as Paris, or Farnborough International Airshow. This is an international trade fair exhibiting also aerospace equipment.

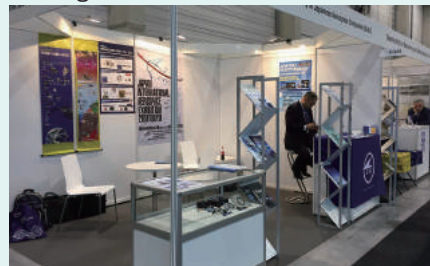
We exhibited our products using a part of the booth of The Society of Japanese Aerospace Companies (SJAC).

Although the allocated area was so limited, we selected and exhibited the products actually used in space; such as the multipolar resolver installed on Mars rover "Curiosity," the stepping motors used on the moving part of the shutter of cameras on artificial satellites, the reaction wheel on micro-satellites, and FOG-IRU.

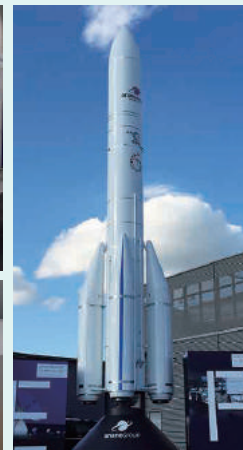
A lot of B to B meetings were performed in the booth. It was a valuable opportunity for us to directly talk with the overseas clients who were interested in our company.

We will positively work to develop our business using this trade fair cooperating with the engineering department, as we can research the latest trend of the market, which is very useful for a company like us involved with the aviation and space industries.

The sight of the booth



Presentation on the company's space venture



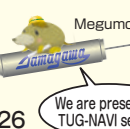
The model of Ariane6 being developed by the European Space Agency (ESA)

Exhibition information Please come and visits our booth at the following exhibitions!

● Soil Improvement Technology Expo 2018

Period: Wed. September 26 to Fri. September 28

Venue: EAST5 Hall at Tokyo Big Sight Booth No.: G-54

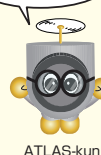


● Security & Safety Trade Expo 2018 (RISCON TOKYO)

Period: Wed. October 10 to Oct. October 12

Venue: WEST2 Hall at Tokyo Big Sight Booth No.: 2E-31

We are presenting the ATLAS series



● Japan International Aerospace Exhibition 2018 Tokyo (JA2018 TOKYO)

Period: Wed. November 28 to Fri. November 30

Venue: EAST8 Hall at Tokyo Big Sight Booth No.: 8230

We published the first number of TAMAGAWA NEWS in February 2008. We can celebrate the 10th anniversary this year.

We have aimed to make it one of the places for cultural exchange with our clients by presenting the new technologies, product information, and in-house information of our company, or the local information of Minami Shinshu, Hachinohe area, etc.

In the last decade, changes took place everywhere like living environment and industrial fields. The company has also developed new businesses by expanding the domestic offices and plants, establishing bases abroad, and promoting the civil aircraft business.

We will keep trying to correspond to social changes and sending out the information that is easy to understand. Sincerely hope that you will continuously read this magazine regularly.



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