

Technique raised by passion, becoming a mechanical engineering heritage.

July 2015, the 24th, Japan's first Torque converter automatic transition car "Mikasa" in which was mounted the very first Torque converter developed in 1951 has been certified by the Japan Society of Mechanical Engineers as a "Mechanical engineering heritage".



"Mechanical engineering heritage" is aimed at the mechanical engineering techniques that have their place in the history and deserve to be remembered. As a cultural heritage, they need to be transmitted to the next generation. The Japan Society of Mechanical Engineers delivers certifications to the Japanese Mechanical Engineering that need to be remembered as a historical heritage.

The chair Museum



Location:
Tokyo, Chiyoda-ku, Nagatacho 2-13-2
Telephone:
03-3593-6195
Opening hours:
9am~5pm
Closed on:
Saturday, Sunday, National holidays
Free admission

* No parking spaces are available, please use public transportation.



okamura

日本初のFFオートマチック車「ミカサ」の
オートマチック・トランスミッションが
2015年、「機械遺産」に認定されました。

※機械遺産とは、歴史的意義のある機械技術関連遺産を大切に保存し、次世代に伝えることを目的に、一般社団法人日本機械学会が認定する制度です。

技術の力で、世界に通じる革新的な製品を。
オカムラには今も、「ミカサ」の
モノづくり遺伝子が息づいています。

オカムラは1951年、初の純国産トルクコンバータを開発。そして、実用機を組み合わせ、日本初のFFオートマチックトランスミッション車「ミカサ」を1955年に生み出しました。それから60年、その革新的なモノづくりの精神は、オフィス家具をはじめ現在のオカムラの製品づくりに継々と受け継がれています。

よい日は結局おトクです
オカムラ
株式会社 岡村製作所

The DNA of okamura

Introduction of Okamura's Advertising on a full page in the Nikkei

Specifications of Mikasa Touring (abstract)

Name of car:	Mikasa Touring	[Engine]	
Model:	Mikasa MT10	Model:	4-stroke cycle, overhead valve, forced air cooling, two-cylinder engine's flat twin
Length:	3,810mm	Displacement:	585cc
Width:	1,400mm	Compression ratio:	7.3
Height:	1,365mm	Maximum power:	19.5HP/4000r.p.m.
Wheelbase:	2,100mm	[Transmission]	
Front track:	1,170mm	Torque converter:	Okamura AK-4
Rear track:	1,180mm	Gear ratio (1-speed):	3.44:1 emergency
Minimum ground clearance:	185mm	(2-speed):	1.335:1
Luggage compartment		(reverse):	4.24:1
Length:	1,200mm	Reduction gear type:	Spiral bevel gear
Width:	960mm	Reduction ratio:	3.89:1
Height:	940mm	Drive system:	Front-wheel drive
Unladen weight:	610kg	Steering:	Rack and pinion
Riding capacity:	Four persons	Tire:	5.0-15x4 Flywheel
[Performance]		Fuel tank capacity:	24 ℓ
Top speed:	90km/H		
Gradeability:	30%		
Turning circle:	4.9m		
Fuel consumption:	18km/L		
	(Flat road maximum load at the time)		

The DNA of okamura



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Commodities produced after the war



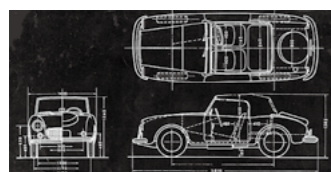
Steel club table and chair set



Founder-Yoshiwara Kenjiro



N-52 the successful airplane



Mikasa Touring's dimensions as: 3.81m length, 1.4m width, 1.36m height

Road to success

Mikasa's development – The Story

A Passion for mechanical engineering

After World War II, many companies due to the post-war rehabilitation scheme came back through the production of commodities. So did Okamura. From 1947, orders were received from the US Army that occupied Japan for aluminum trunks, window shades, Jeep's top cover, automobiles number plates and the steel used in the US Army feeding club's furniture, the production began. While adapting and responding to the US Army's demands, Okamura started to build its name as a brand and to enhance its products reputation day by day.

In order to "live", Okamura began manufacturing necessary commodities. Founder Mr. Kenjiro Yoshiwara and his engineers utilized their skills they developed over the years, and made use of their own skills to their best. The dream and passion for "mechanical products" didn't fade, this interest went all to the Scooter that was commonly seen in the streets at that time.

US-made Scooters got disassembled, remodeled and subjected to repetitive tests. Until one day a military officer came to repair his own scooter. There, a hydraulic coupling that was not a regular product, mounted on the power transmission drew Okamura's engineer's attention.

This was meant to become, Japan's first "Torque converter (hydraulic power transmission)" and the reason behind its development.

From planes to cars

One day in 1952, an authoritative professor of aerodynamics at Nihon University, led the students of the "Japan

Students Aviation League" presided by the Newspaper "Asahi Shimbun", to manufacture a light aircraft. The founder Mr. Kenjiro Yoshiwara gathered skilled aeronautical engineers who were enrolled in the Nihon Aircraft Manufacturing Co., Ltd (the actual NIPPI Corporation), raising Okamura's value which had a very high reputation, this resulted to a contract for prototype designs with Asahi Shimbun, and after countless experiments and series of trial-and-errors a solution was finally found.

The aircraft "N-52", performed its first flight in Shizuoka on Hamamatsu's airfield on April 7th, 1953, and is still today spoken about as one of the successful example of post-war Japanese airplane.

Despite encountering a great success, the aircraft manufacturing business in terms of costs proved difficult to continue, and after the N-52, Okamura was never again involved in the aircraft industry.

Although the engineers spent their days devoted to the production of daily necessities, while their evenings were dedicated to developing the torque converter, but proved difficult to materialize at the time.

A different approach was taken, based on the US-made car equipped with a torque converter; a new direction of development began. In 1951, an epoch-making entirely domestic made torque converter was successfully built.

This torque converter was in 1952, adopted by the Japanese National Railways (current Japan Railway Company) for their blast proof diesel locomotive, and as a result also used in logging



"No clutch OK drive" Manufactured by Okamura.

machines, industrial and construction machinery's forklift, power shovels, bulldozers and a variety of other fields. The range of activities was getting wider and the promising future of the automobile industry within sight.

An automobile car that the future Japan will ask for

Okamura's automobile development team, based their researches and development on the popular car "Citroen 2CV". That was at that time well-known in France. An automatic transmission engine that combined forced air cooling two-cylinder engine's flat twin, torque converter and a two-speed gearbox (AK-4-inch, nicknamed "no clutch OK Drive") loaded, the body made out of an aircraft's thin board processed technology. The interior of the cars were all developed and made in-house, so were designed and manufactured by Okamura.

1955, to raise the global resources of Okamura, the first automobile prototype was developed using the best of technology available at the time. Innovative and revolutionary front-wheel drive FF (Front-engine Front-drive) system, Japan's first torque was completed as a sedan-type automobile converter type automatic car (586cc). This memorable first car took the name "Mikasa".

May 1957, Tokyo, Hibiya Park, the Mikasa debuted at the "4th Japan Automobile Show" (the current "Tokyo Motor Show") where it was revealed to the public together with the "Torque converter Industrial Exhibition". A Torque converter with significantly improved performances exhibited retained the attention of the public.

An automobile information magazine in the UK, reported that Mikasa was "likely to be the world's smallest torque converter equipped car". Okamura announced the "Mikasa touring" sports model for the next year.

"Mikasa Touring" sports model launched in 1958.



Okamura's Torque converter and Mikasa had the whole automotive industry attention fixed on them.

Torque converter performances evaluated and supplied to other companies

With its success with "OK matic" an automatic transmission developed for automobiles made it the leading automobile manufacturer in Japan, Okamura not only used the separate components of the Torque converter to supply other car companies but also provided them with technical knowledge. As Japan's pioneer in fluid torque converters, Okamura contributed to spread Japan's automatic transmission for automobiles.

A "Courageous withdrawal" from the automobile business

Okamura then started raising a system for mass-producing "Mikasa", increasing also the installation of production base equipment and new production lines. But from the automobile's research and development to the manufacture and selling, an immense capital recovery problem was still unsolved. In spring 1960, the Management judgment took the final decision for "Mikasa's production closure". A deeply-troubling decision, feelings held back, to stop the production, but for the world it was at that time "a very courageous withdrawal".

"Mikasa's" production, lasted three years and totaled around 500 automobiles, most of them being "station wagon" type.

The dream of being an automobile manufacturer unfortunately came to an end but the manufacture of Torque converters kept alive the passion for mechanical engineering. Thanks to the shaping out this road to success, and until today, in the industrial equipment as well as other fields, the same philosophy is applied.

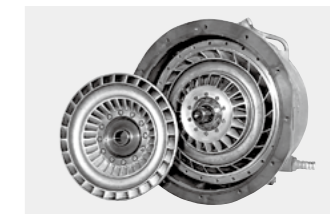
And those "Mikasa's" manufacturing genes, still lives on in today's Okamura manufactured goods.



Prototype for "Mikasa" Sedan type



Mikasa when first shown at the "4th Japan Automobile Show"



The first Torque Converter entirely manufactured in Japan



Okamura's booth at the "Torque converter Industrial Exhibition"



"Mikasa's" line up (from the left "Mikasa Touring" station wagon "Mikasa Mark I" "Mikasa Mark II" 2 Vehicles)

