2000 Suzuki Environmental Report

小少軽短美

Smaller, Fewer, Lighter, Shorter, Neater

At SUZUKI, all manufacturing activities and environmental programs are based on a single concept, "Smaller, Fewer, Lighter, Shorter, and Neater."

- ***This Environmental Report has been translated from the original Japanese Environmental Report text which mainly refers to domestic models and markets.***

SUZUKI

Our Concept

小少軽短美

Smaller, Fewer, Lighter, Shorter, Neater

At Suzuki, all manufacturing activities are based on a single concept, “Smaller, Fewer, Lighter, Shorter, and Neater”. Suzuki’s focus on manufacturing of small vehicles and compact products is expressed in this concept. It is our wish that both final products and plants where products are manufactured provide maximum value to our customers, and at the same time, become smaller, fewer, lighter in weight, shorter deliver time and transportation, and neater.

We first adopted this concept in the early 1990s. Immediately after the end of the bubble economy during which the focus of competition had been placed on the “larger and more luxurious”, Suzuki’s concept showed a new direction and to date has continued to be the guiding principle for manufacturing at Suzuki.

“Smaller, Fewer, Lighter, Shorter, and Neater” also articulates Suzuki’s stance on environmental issues. Characteristics of the fields in which Suzuki excels, such as motorcycles, mini and small vehicles, are resource and energy saving. Suzuki’s current theme is how to make the environmental impacts of its corporate activities “smaller, fewer, and lighter”, and the time and transportation of the activities; “shorter” and speedy; and how to keep our environment “neater” and maintain its beauty.

Environmental Policy

● Basic Policies Concerning Environmental Issues

The degradation of our global environment, in the form of global warming and the depletion of the ozone layer, has become a major concern for each and every one of us. Having recognized that commitment to environmental issues is one of management’s primary responsibilities, we have determined our basic policies concerning environmental issues.

(1) The existence and activities of any enterprise are directly related to not only the local community, but to the environment as well. And these facts must be taken into consideration when conducting business activities.

(2) We recognize that commitment to environmental issues is a prerequisite for the realization of a society, which enables maintenance and sustainable development of an enterprise.

(3) We strive to do the following in our business activities.

1. Protect the environment on a global scale and improve the local environment.
2. Take into consideration the ecosystem and the preservation of resources.
3. Ensure environmental friendliness in our products.
4. Ensure the health and safety of our employees and local residents.

● Considering the Environment

(1) In research and development, and product design, we will strive to minimize impact on the environment at every stage of production, distribution, use and disposal.

(2) In the procurement of production-related materials, we will strive to select materials, which are excellent in terms of their environmental friendliness, resource preservation and recyclability.

(3) In manufacturing activities, we will strive to adopt technology that is excellent in terms of energy efficiency and environmental friendliness. Moreover, we will strive to achieve effective utilization of resources and to reduce waste through the promotion of recycling, etc.

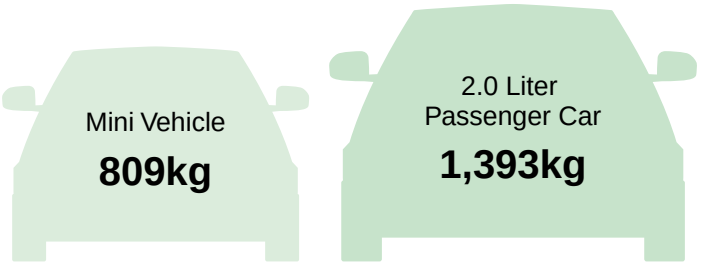
(4) We will adhere to environmental regulations set by national and local governments and establish voluntary standards as necessary in order to protect the environment.

Environmentally Friendly Mini Vehicles

After regulations concerning mini vehicles came into effect in 1949, mini vehicles have played an important role as the “the citizen’s legs” in the motorization of Japan. After the introduction of the “Suzulight” (2-cycle, 360cc) in 1955, we have manufactured and marketed a wide variety of automobiles such as the Alto, Carry, Wagon R, etc., and are considered a pioneer and specialist in mini vehicle field. By the end of the year 2000, the number of mini vehicles in private possession has exceeded twenty million, which accounts for 27.6% of all automobiles. Most of these mini vehicles are an indispensable part of everyday life in locales where public transportation is insufficient. Also, mini vehicles support the Japanese economy as a “business car” for many shops, small and medium-sized businesses, as well as agriculture, forestry and fishery related fields. In addition to their low cost, tax rates, maintenance, etc., they provide, from an environmental point of view, excellent fuel economy, effective use of roads, and are useful in relieving the congestion of roads due to their compact size. They also contribute to the environment by reducing the strain on natural resources and energy. Presently, the environmental value of mini vehicles is once again being recognized globally. Continuously considering the role that the mini vehicle plays in everyday life, Suzuki continues to challenge itself, based on our concept of “the future of our earth depends upon the small car” to provide better living conditions to people all over the world.

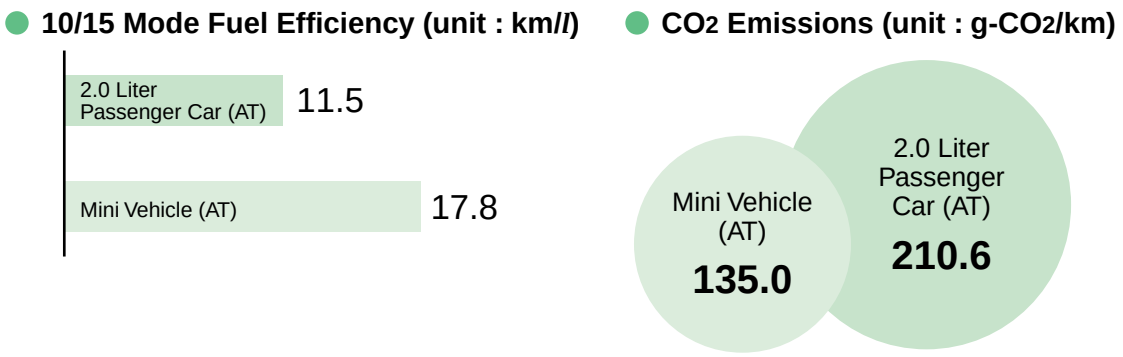
(1) Mini vehicles contribute to reducing the strain on resources

Since the body of a mini vehicle is made as small as possible, mini vehicles are light in weight and require less materials to produce. The average weight of a mini vehicle is about 809kg which as about 60% the weight of a 2.0-liter passenger car. Therefore, waste produced when the vehicle is disposed of is less than that of other automobiles.



(2) Mini vehicles can contribute to reducing energy requirements

Because of their small engine displacement and light weight, the average fuel economy of a mini vehicle is 17.8km/liter while the average amount of CO_2 they produce is 135.0g-CO_2/km. Compared to a 2.0-liter passenger car, both of these figures for the mini vehicle are about 60% of that of a 2.0-liter passenger car.



(3) Mini vehicles do less damage to roads

The degree of damage an automobile causes to asphalt-paved roads is in proportion to the fourth power of the automobile's weight. Since mini vehicles are light, they cause less damage to roads. The amount of damage caused by a mini vehicle is one ninth of that of a 2.0-liter passenger car.

	Mini Vehicles	2.0 Liter Passenger Car
Weight	809kg	1,393kg
Weight Ratio	1	1.72
Damage to Road	1	8.8

* Source: "Fuel Efficiency of Vehicles, March 1999" (Ministry of Transport)

Concerning Environmental Issues 1: Product Development

Fuel Efficient and Low Emissions Mini Vehicles

As the No.1 seller of mini vehicles, we have committed ourselves to extensive research and development of "Environmentally Friendly Mini Vehicles".

Technologies That Improve Fuel Efficiency

● Idling Stop System

The idling stop system automatically stops the engine when the car is stopped at traffic signals, etc. to reduce the amount of fuel that is wasted in those instances and reduce CO_2 exhaust emissions. When it is time to get underway, simply depressing the clutch pedal restarts the engine automatically.

This system is utilized on our Alto L'ÉPO (5MT) lean burn engine models.

● Lean Burn Engine

Compared to a conventional engine under normal running conditions, a lean burn engine will operate on less gasoline thereby increasing fuel economy and reducing CO_2 emissions.

Proudly, our Alto L'ÉPO which utilizes our DOHC lean burn engine in conjunction with the idling stop system and an electric control throttle, holds the No. 1 rank in the fuel economy category with a 30km per liter* rating.

* 10/15 mode fuel economy of the 5MT SUZUKI /from data provided to the Ministry of Transportation by Suzuki 11/30/2000

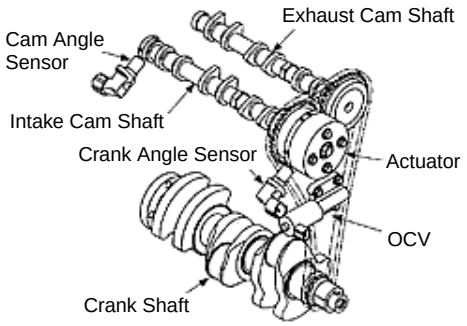
The Continuously Variable Valve Timing Mechanism (VVT)

Our Continuously Variable Valve Timing Mechanism (VVT) delivers optimum valve timing whether driving in town or on the highway, by continuously adjusting the valve's timing as driving conditions, such as engine load and rpm's, change.

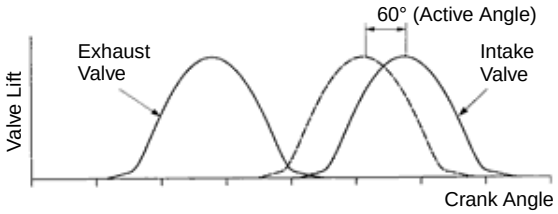
Using the VVT mechanism improves output, torque and fuel efficiency while reducing the amount of CO_2 and NOx emissions produced by the vehicle.

Suzuki's VVT mechanism utilizes a vane type actuator that is attached to the top of the intake cam shaft and controlled by the OCV (Oil Control Valve), to control the relative phasing between the sprocket and cam shaft, and the timing of the intake valve.

Under heavy load conditions, this mechanism improves charging efficiency to improve torque and power output. Under average load conditions advancing the timing of the intake valve increases valve overlap (when both intake and exhaust valves are opened) which in turn increases the volume in the EGR (Exhaust Gas Recirculator) and fuel efficiency while reducing CO_2 emissions.



Characteristics of the VVT Mechanism



VVT Active Range

Improvement of Air-Fuel Ratio with Extremely Precise Control

If we could fix the air-fuel ratio at its theoretical optimum, instead of adjusting fuel requirements to compensate for the differences during acceleration and deceleration, we can reduce exhaust emissions and increase fuel efficiency. Our solution was to utilize a precision computer control system to control the volume of fuel that is delivered to the intake manifold by the multi-point sequential injectors to each cylinder, etc. Future applications will incorporate a knock control into all of our vehicles to provide optimum ignition timing to prevent knocking.

Improving the Automatic Transmission and Expanding Use of the 4-Speed Automatic Transmission

Promotion of our efficient automatic transmissions has resulted in wider usage and popularity in mini vehicles. In detail we have 1) improved efficiency of the torque converter, 2) reduced the mechanical loss of rotating parts, 3) reduced loading of the oil pump by propriety oil pressure, etc. Also, to convert engine power to drive power more efficiently we have increased the number of speeds in the automatic transmission. The 3-speed automatic transmission was long the norm for mini vehicles but we are now promoting the use of the 4-speed automatic transmission. Since October of 1999, all of our AT equipped Kei models have been equipped with 4-speed automatic transmissions, while AT equipped Wagon R models have been equipped with the 4-speed automatic transmission since December of 2000.

Reducing Weight

"1 Gram Weight Reduction for One Component" Campaign

Taking the automobile's weight factor into serious consideration, we launched a "1 Gram Weight Reduction for One Component" campaign, which would even effect the design of a single bolt. Utilizing computer FEM (Finite Element Method) analysis, we were able to achieve an optimum design, strength, rigidity and materials for each individual part with excellent results. As an example, the engine mounts that are used to mount the engine to the chassis have seen a 20% reduction in weight while maintaining the same strength and rigidity according to FEM analysis.

● First introduced on mini vehicles, Neutral Slip (NS) control provides optimum performance between electric control 4-speed automatic transmissions and the engine.

Drive (D) Range Neutral (N) Control

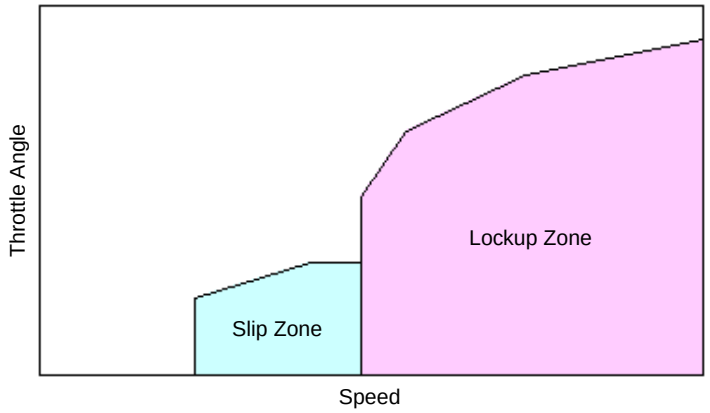
When an automobile equipped with a manual transmission is stopped, very little power is lost since the clutch is depressed and the shift lever is moved to the Neutral position. But when an automobile equipped with an automatic transmission is stopped, the transmission is still engaged (in the Drive range) so power that is spent in the torque converter results in reduced fuel efficiency, especially in crowded, downtown driving conditions. The Drive Range Neutral Control reduces power loss while the auto is stopped, even if the gear select lever is left in the Drive position. By regulating the circulation of oil pressure inside the automatic transmission to match the same conditions as when the transmission is in Neutral, this method reduces power loss and improves fuel efficiency (approximately 5%) while stopping with the automatic transmission engaged.

Slip Lockup (S) Control

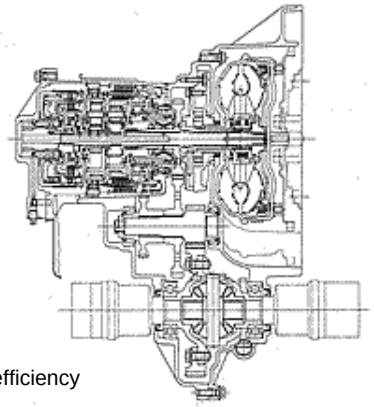
One of the weak points that the automatic transmission's torque converter possesses is that the use of fluid is not an efficient method to transfer power. One remedy to this problem is the Lockup method where a lockup clutch attached to the torque converter is activated under specific conditions (at a specified speed or specified throttle angle) to directly connect the torque converter which improves power transfer efficiency. We wanted to increase the range under which the Lockup is applied for improved fuel efficiency but the Lockup method is not compatible with low speeds because of its potential to transfer engine vibration to the chassis under low speed conditions. That is why we have utilized a slip lockup control that provides greater power transfer efficiency while inhibiting the transfer of engine vibration to the chasis.

The Slip Lockup Control absorbs vibrations by allowing the Lockup Clutch to slip within the range of rpm's that are prone to producing unwanted vibrations thus eliminating the transfer of vibration to the chassis and improving fuel efficiency. Feedback control adjusts the lockup clutch oil pressure so that the difference between rpms entering the torque converter and rpms exiting the torque converter are fixed thus producing a half lockup condition while driving. The graph below illustrates the speed schedules used for the lockup zones and slip zones. The darker lockup zone's lower speed limit and the slip zone's upper limit are linked which results in an improvement in fuel efficiency under frequently used low speed driving conditions.

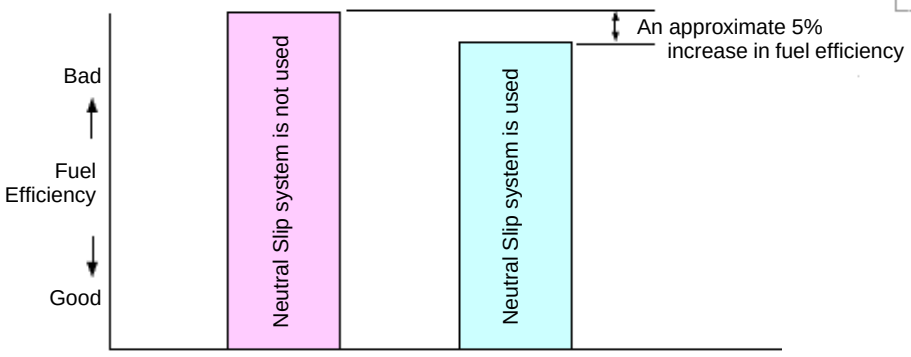
Lockup, Slip Graph



With revisions in the standards for mini vehicles, Suzuki was first among small vehicles to introduce the Neutral Slip Control in the 1998 Wagon R-RR. The same system is now used on the Kei as well. The graph below compares the difference in 10/15 mode fuel efficiency ratings when the Neutral Slip system is used and not used. The graph indicates that the auto equipped with the Neutral Slip system delivers an approximate 5% increase in fuel efficiency.



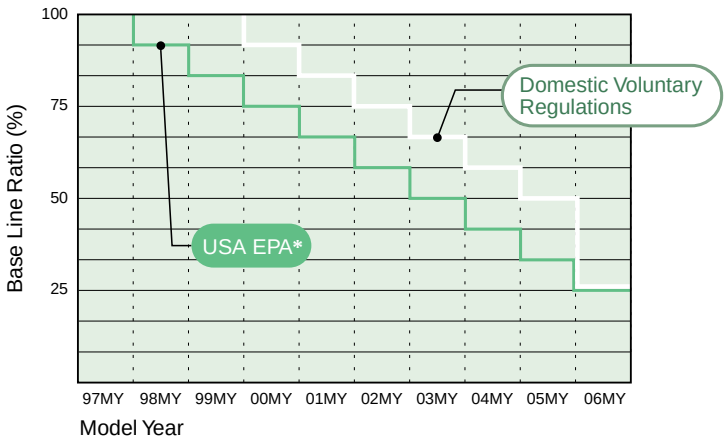
Comparison of efficiency ratings when the Neutral Slip system is used and not used



● Outboard Motors, Moving from 2-Stroke to 4-Stroke, Improving Fuel Efficiency & Lowering Exhaust Emissions.

In the marine engine industry, Suzuki has developed four-stroke outboard motors that deliver excellent fuel economy and low exhaust emissions. With the introduction of the DF90 and DF115 in 2000, the four-stroke lineup consists of ten models ranging from the 9.9 horsepower to the 115 horsepower models. We are currently in the process of phasing out our two-stroke lineup to move to an all four-stroke lineup. When comparing four-stroke outboards to their same horsepower two stroke counterparts, the four-stroke outboard delivers an approximate 30% increase in fuel efficiency at maximum output (in house testing). Fuel efficiency is also improved 60-75% at idle (in house testing). When comparing the amount of contaminates found in the emissions of four-stroke and two-stroke outboards, the total output of HC and NOx has been reduced to less than 25% of that of the two-stroke. Our four-stroke lineup already complies with the 2006 EPA* regulations, which become increasingly stricter year by year, and has also passed voluntary regulations outlined by the Japan Boating Industry Association. Suzuki's full lineup, including two-stroke outboards, has also passed the 2004 voluntary regulations of the Japan Boating Industry Association for the amount of contaminates in exhaust emissions.

■ Schedule for Reducing Emissions in Marine Engines.



* United States' Environmental Protection Agency

Detoxifying Exhaust Emissions

Suzuki has striven to make environmentally friendly automobiles in order to reduce toxic substances such as Carbon Monoxide (CO), HydroCarbons (HC), Nitrogen Oxides (NOx), etc. in exhaust emissions.

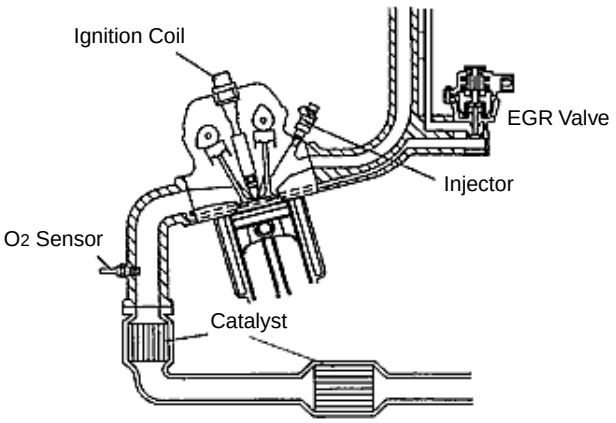
The majority of Suzuki's automobiles have passed the 2000 regulations "Excellent-Low Exhaust Emissions(**)", which is granted when the amount of each of the substances is kept at 50% or under, or "Good-Low Exhaust Emissions(*)", which is granted when the amount of each of the substances is lowered by 25% or more. By the end of 2001, all Suzuki automobiles will pass these regulations.

The following methods have been utilized for reducing toxic substances in exhaust emissions.

● Engine Controls

Three-Way Catalyst System

Toxic substances present in exhaust emissions can be controlled and kept to a minimum by burning an optimum amount of fuel depending upon the engine's current operating conditions. Controls can be used to supply an optimum ratio of air and fuel (air-fuel ratio). Suzuki's automobiles utilize engine control systems that deliver maximum detoxification of exhaust emissions using a three-way catalyst in conjunction with precise control of the air-fuel ratio.



An Active Early Stage O_2 Sensor with Heater

An O_2 sensor, that measures the amount of O_2 concentrated in the exhaust emissions, is used to control the air-fuel ratio, but most Suzuki automobiles use a sensor fitted with a heater to provide suitable control of the air-fuel ratio from startup of the engine.

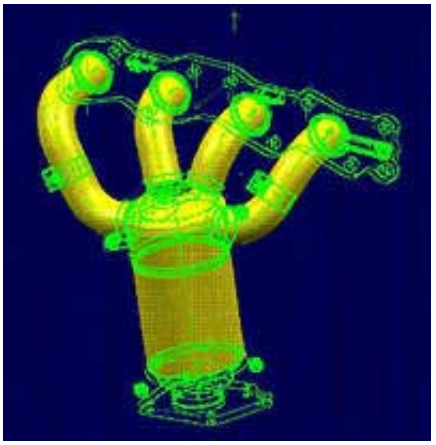
Electric Control EGR System

The EGR (Exhaust Gas Return) system is used to reduce a large amount of NOx emissions by re-directing a portion of the exhaust back to the intake. Suzuki utilizes a system, which controls the amount of EGR to provide an optimum amount of EGR under any driving conditions.

Methods for Managing Exhaust Emissions

Manifold Catalyst

In order for the catalyst to begin the detoxification process as quickly as possible after engine startup, and to control the emission of toxic substances, the catalyst has been designed to come directly after the manifold. It also utilizes a thin wall design, with a fine and lightweight honeycomb mesh to further speed up warming of the catalyst system.



Improving the Three-Way Catalyst

Depending upon the type of engine being used, Suzuki uses three different metals-platinum (Pt), palladium (Pd) and rhodium (Rh)-as the detoxification catalyst, and also oxidation catalysts for their high thermal stability and longevity with little deterioration. Also, to obtain maximum effect from these precious metals, we have utilized a next generation catalyst that incorporates a multilayer structure.

Lean NOx Catalyst

The Altos equipped with the lean burn engine utilize a three-way catalyst in combination with an NOx trap to filter out NOx since a normal three-way catalyst system is not sufficiently effective at reducing NOx during lean burn combustion. Also, we are currently developing a new detoxification system where the lean NOx catalyst and three-way system are located directly after the manifold. This system will be employed on subsequent models that utilize the lean burn engine. This system reduces all three toxic substances, exhaust emissions at a cold start, as well as NOx produced with lean combustion, and exhaust emissions during stoichiometric (rich) combustion.

Reducing the Amount of Lead

● Discontinue the use of lead in the painting process at motorcycle and automobile factories.

Up to the present, a lead chemical compound was mixed in with the paint to protect the vehicle against corrosion and to act as a hardening catalyst in the primer coat (electrostatic painting) process. Encouraging the elimination of lead use at each of our factories has lead to the use of a material compound that produces the same results.

In September of 1999, we shifted the automobile painting process at our Kosai Factory (Kosai-city Shizuoka Prefecture) to this new method followed by the Iwata Automobile Factory (Iwata-city, Shizuoka Prefecture) in September 2000, and by the Toyokawa Motorcycle Factory (Toyokawa-city, Aichi Prefecture) in January of 2001 to completely eliminate the use of lead in the painting process at all of our domestic factories.

Future plans will see the elimination of the use of lead in the painting process at all of our overseas factories as well.

Additionally, we have also eliminated the use of lead for battery cable terminals, copper radiators, copper heater cores, undercoating, etc. Once the use of lead is eliminated in all of our painting processes, we are planing to reduce the use of lead in other processes as well.

We have also eliminated the use of sodium-azide that has been used in the air-bag's inflator in 1997.

Lead-Free Solder

Just as in electronic goods such as televisions, computers, etc., solder that uses lead (tin 6: lead 4) is used in the Electric Control Unit (ECU). Research is underway to develop a lead-free solder so that we can move away from the current lead-based solder. Until now, lead-based solders have been considered to be the best choice while lead-free solders suffer from problems like too high of a melting point, etc. We are currently researching and developing a lead-free solder that is fully reliable for use in a critical component like the ECU.

Lead-Free Gears

We began use of lead-free materials in gears from October of 2000. Our plan is to increase the use of lead-free materials one-by-one.

Others

We are also planning to switch to lead-free wheel balance weights by the year 2002. Also, we are considering decreasing the amount of lead used for paint on steel wheels.

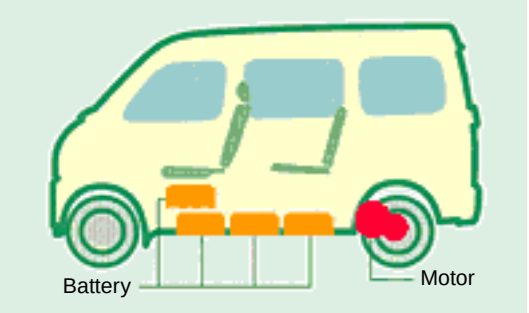
Developing Next Generation Automobiles

● Electric Vehicles

Manufacturing and Selling Every EV

Timed with the revisions in the standards for mini vehicles, we introduced an electric vehicle that was developed and based on our gasoline type Every mini van. Sold since August of 1999, this vehicle offers ride close to that of vehicle equipped with an automatic transmission but is equipped with a newly developed permanent-magnet type synchronous motor and a single gear transmission. A total of twenty batteries are stored underneath the floor of the vehicle so that luggage space can be used just as in a gasoline engine version. Its maximum speed is 95km/h and it can travel 110km* on a single charge under 10/15 mode conditions.

* Suzuki in-house test results.



Developing Super Small EVVehicles (Suzuki Pu-3 Commuter)

We are currently developing an ITS-EV type two-passenger, super compact EV concept car. This vehicle is based on the Suzuki Pu-3 Commuter that was introduced at the 1999 Tokyo Motor Show and uses ITS (Intelligent Transport System) in combination with EV characteristics. The user can select one of three power sources available-gasoline engine, hybrid HEV or Electric EV-to be mounted on the chassis.

On the EV version, the motor and power related equipment is located in the engine room while the vehicle's ten batteries are stored underneath the floorboard.

Cooperative System Using Electric Vehicles

ITS/CEV City Rent-A-Car System

In 1998, NEDO (New Energy and Industrial Technology Development Organization) approached the Association of Electronic Technology for Automobile Traffic and Driving in regards to research into and development of ITS (Intelligent Transport System) technology with clean energy vehicles (metropolitan and suburban cooperative systems and research and development of advanced driving management/information). As an experiment, an ITS/CEV city rent-a-car system was begun in the Minato Mirai 21 area of Yokohama (MM21). In cooperation with this project, Suzuki has provided 20 Electric Alto EV and 10 Electric Every EV vehicles, for a total of 30 electric vehicles. Suzuki will assist in examining and developing the possibility of an electric vehicle cooperative system in new businesses such as the use of ITS and a self-serve system.

Yokohama experiment

● Developing Hybrid Automobiles

The hybird system utilizes two power sources, such as the gasoline engine and an electric motor, to deliver increased performance. In pursuit of the lightest, most compact system possible for use in super small vehicles, we have developed a system where the motor is positioned between the engine and the Continuously Variable Transmission.

Deceleration of the vehicle allows the system to recover energy that is recycled back to the batteries by recharging. While the vehicle is stopped, an idling stop system eliminates the waste of fuel.

We have concentrated on making the body small and light, reducing resistance produced while driving, improving the fuel economy by using highly efficient power sources and reducing exhaust emissions. Depending upon loads, the driving condition of the motor and engine are controlled to improve fuel efficiency.

● Developing Fuel Cell Vehicles

Fuel cell vehicles are currently under development at Suzuki as the next generation environmental vehicles. The fuel cell vehicle uses hydrogen as fuel making it a zero emission vehicle that does not emit any exhaust emissions (NOx, HC and CO). Also, the vehicle does not emit carbon dioxide, a source of global warming. The same characteristics are also found in electric vehicles however, the fuel cell vehicle's performance, such as re-charging time, operating range, etc., is comparable to that of gasoline vehicles. Suzuki is conducting research and development of the fuel cell vehicle so as to be able to introduce the vehicle of the 21st Century to the market as soon as possible.

Concerning Environmental Issues 2: Production

Less Waste and Less Energy

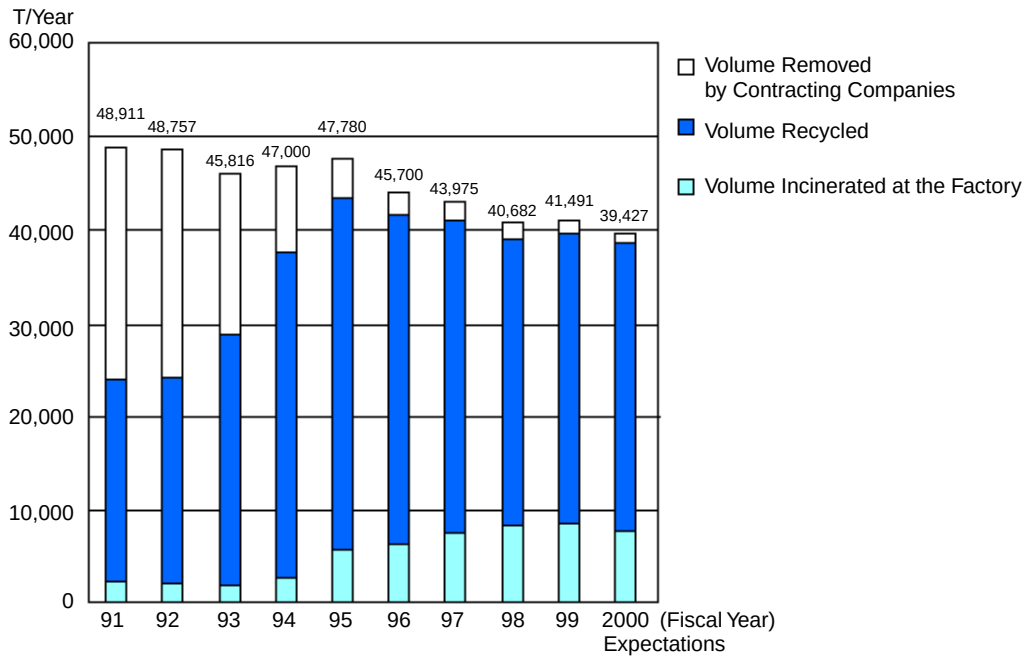
At Suzuki, each of our plants, and all of our affiliate companies, takes an active part in environmental conservation activities based on Suzuki's environmental policies. Paying extra attention to the impact on local environments we have strived to reduce waste and prevent polluting the environment.

Reducing the Volume of Waste and Promoting Recycling

Actively promoting the reduction of waste produced at our factories has resulted in a 20% reduction in the amount of wastes produced in 2000 as compared to levels from 1991. As an example, machine oil used to lubricate equipment passed through a fine filtration system to remove wastes from the oil so as to extend its life and use. We have also improved spray methods used in the painting process so as to reduce the amount of paint and paint waste. Other improvements have been reducing the amount of sealing materials needed by improving their air-tightness, reducing flawed assemblies, and packing materials to reduce waste of plastic materials. In this manner, we are aggressively working to realize our goal of "Achieve zero level* (zero emission) of non-recyclable waste by 2001."

* Zero level waste .... less than 1% non-recyclable waste (the volume removed by contracting companies) as compared to 1990 levels

Trend in the volume of treated waste



Reducing the Load on the Environmental

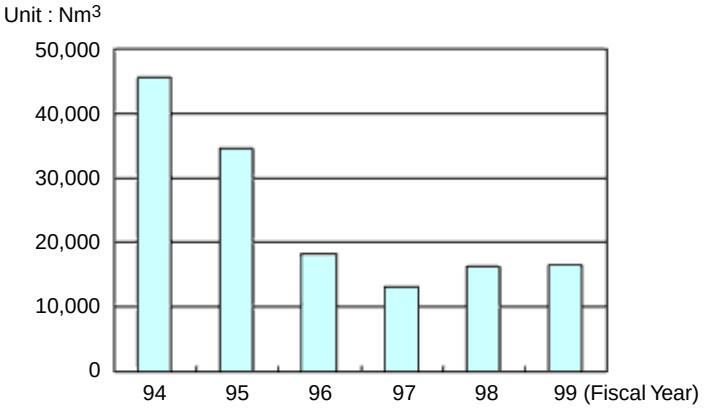
Air

To prevent air pollution we have equipped our factories with purification equipment such as filtration systems, etc. to purify emissions.

We have also given careful consideration to emissions such as SOx, etc., that have adverse effects on our environment, we have changed from using heavy oils for fuel in our plants, to Liquid Propane Gas or kerosene which have much less impact on the environment.

As a result of these activities, the amount of SOx emissions in 1999 was reduced by about 35% compared to 1994 levels.

SOx Emissions

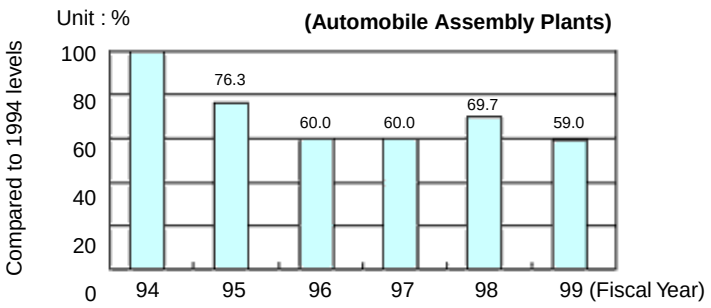


Water Discharge

All water used in the manufacturing process is purified in our wastewater management facility before being discharged.

In regards to the discharge of water, we have voluntarily set standards that are stricter than current domestic laws in order to reduce the load on the environment. Also, we have promoted the reduction of discharge from our facilities by means of saving and recycling water used in our plants. The amount of water discharged in automobile assembly plants, which use a large volume of water in the painting process, has been greatly reduced compared to 1994 levels.

Bar Graph of Amount of Discharge Per Chassis



● Countermeasures Against Organochlorine Compounds

In January of 1999, above standard levels set by environmental regulations of trichloroethylene and cis-1, 2-dichloroethylene were detected in the underground water beneath Suzuki headquarters. At present, an underground water purification facility and soil purification system are in operation at the headquarters plant for purification.

● Management of Scientific Materials

To better manage the amount of scientific materials that are discharged and transported we have, from 1997, voluntarily been active in inventorying and reducing the amount of scientific materials that are used and discharged based on the PRTR* system.

Prior to the enactment of PRTR regulations in April of 2001, we have firmly established an inventory system and reduced the discharged amount of managed scientific material.

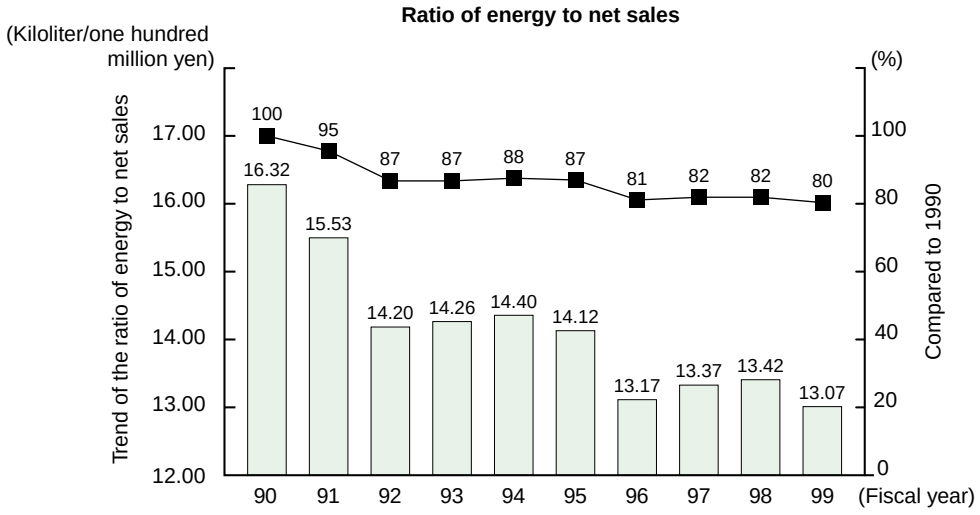
* PRTR .... Pollutant Release and Transfer Register

● Reducing VOC (Volatile Organic Compounds)

Currently, we are developing paints that require less solvent and expanding the use of more efficient electrostatic paint facilities, reduce the amount of paint waste, recycling thinner used for cleaning, and reduce the volume of VOC discharge. As a result, VOC discharge per chassis in fiscal 1999 was 20% lower than that in fiscal 1995.

Reducing Energy Used at Plants

Our goal to reduce the ratio of energy to net sales by 20% was realized in 1999. Out next goal is to reduce that figure even further by improving the efficiency of facilities, the collection of discharged heat, the use of energy-saving equipment, etc., and the development of cleaner energy.



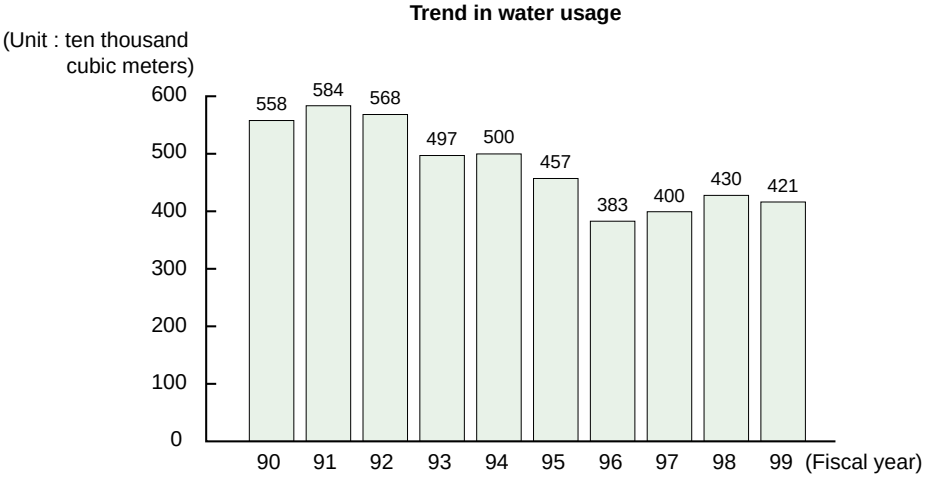
Introduction of Co-Generation (Thermoelectric Multi Benefit) Facilities

Co-generation facilities have been introduced at many of our plants due to their ability to supply multiple types of energy, such as electricity and heat from single energy source. Suzuki introduced co-generation systems at the Kosai Plant in 1995, the Sagara Plant in 1996 and the Osuka Plant in 1998. 44% of the electricity and 63% of the steam needs required by these three plants are supplied with co-generation systems.

Reducing Water Usage

To reduce the amount of water used at plants we have applied measures such as the recycling of cooling water, the use of sealed-type cooling towers, the recycling of discharged water at plants, the use of air cooled compact air conditioners, the use of water-saving taps and the use of rainwater. The amount of water used in fiscal 1999 was down 25% compared to the amount used in fiscal 1990.

Trend in water usage



Preventing Noise, Vibration and Odors

In facilities that use press machines and other sources of industrial noise, we have taken measures, such as soundproofing the walls around the press machines, to reduce noise. We have also dug trenches around the press machines to diminish vibration produced by those machines. To prevent odors, we have installed biochemical deodorizers and water-cleansing deodorizers at casting facilities while catalyst combustion type deodorizers have been installed on paint drying ovens.

Concerning Environmental Issues 3: Logistics

Light and Efficient Logistics

Utilizing Sea Transport (Modal Shift)

We have encouraged the domestic transportation of automobiles to distant locations such as Hokkaido, Tohoku, Chugoku, Shikoku and Kyushu by sea transport. In Fiscal 1999, approximately 41% of all automobiles were transported utilizing ships. Compared to transporting by truck, sea transport produces only 25% the CO_2 per transported ton. Compared to the case whereby all transport had been carried out by truck, an approximate 30% reduction in the amount of CO_2 is achieved.

Reducing Packing Materials

● Simple Knock Down Packaging

Since knock down transport to foreign countries utilizes containers and goods are kept in warehouses; the use of water-proof packing is no longer necessary. This system has been put to use since January of 2000 to the countries of China, Brazil and India.

● Compact Packing of Senior Cars

When packing our Senior Car units, we have discontinued the use of wood pallet and cardboard packing materials and moved to a cardboard only packaging. This new method offers a more compact package that is easier to recycle while increasing the number of units we can load onto a truck by approximately 40%. This new method gained recognition with the winning of the “2000 Japan Packing Contest” Logistics Prize plus the World Star Prize at the “World Packaging Contest”.

● Vapor Type Anti-Corrosive Film for Automobile Knock Down Transport

To stop corrosion on sheet metal parts used in automobile production, we have switched from applying a paint-on oil based anti-corrosive to a vapor type anti-corrosive film that simply requires wrapping of the part. When the roll of film is finished, the core (cardboard tube) is returned to the manufacturer for reuse.

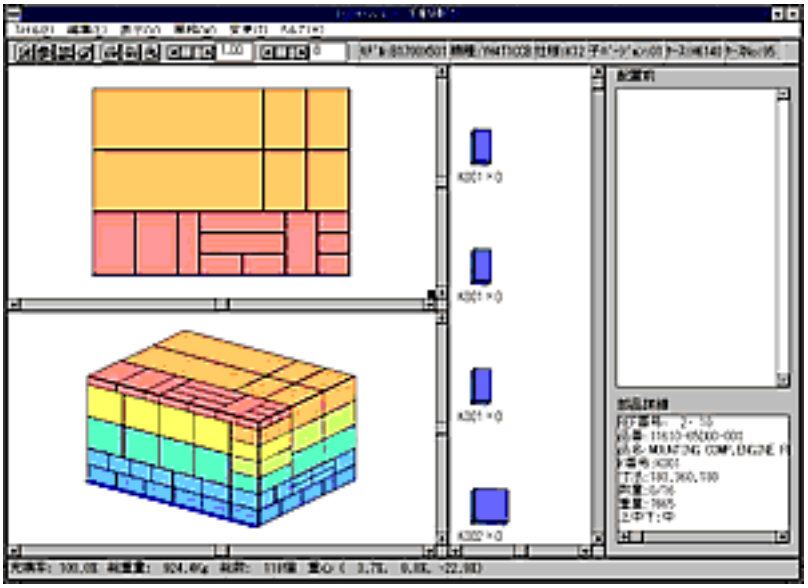
● Direct Transportation from Manufacturing Facilities to Ports

After replacing anti-corrosive oils with the anti-corrosive film, large sheet metal parts manufactured at the Iwata Factory can now be packed at the Iwata Factory. This method allows us to bypass the Kosai Factory and greatly improves logistics.

Improving Transportation Efficiency

● Using Computer Simulations to Improve the Filling Ration in the Stowage of Knock Down Components

When shipping knock down goods to foreign countries, we use computer simulations to obtain the most efficient use of space.



● Compact Packing Containers for ATV (All-Terrain Vehicles)

Originally loaded in two layers, the knock down procedure was changed to a three-layer method thereby increasing the amount that can be stowed in a container by 50%.

● Improving Loading Efficiency by Lot Transport

To improve loading efficiency we better match the number of pieces in the load with the size of the truck.

Using an AGV System to Reduce the Operation of Completed Vehicles

We utilize an AGV system (Automatic Guided Vehicle) to move completed vehicles within the factory site in order to reduce the distance that individual vehicles are driven. In 1999, the AGV system transported about 35% of our completed vehicles that are stored at the holding lots. Also, we have decreased the weight of the AGV and also increased the number of cars it transported. Our goal is to transport 50% of those vehicles that are held at our holding lots by AGV.

Concerning Environmental Issues 4: Recycling

Short and Speedy Collection

Think Recycling at the Development Stage

● Promoting the use of easy to recycle materials

When developing new model cars, we take into great consideration the need for the recycling of parts used in the automobile. For that reason we use 50% thermoplastic type PP resin in the resinous materials used in our autos. We have also encouraged the use of single materials in parts like ceiling liners that have until recently used multiple materials.

● Using recyclable plastics for parts on new models

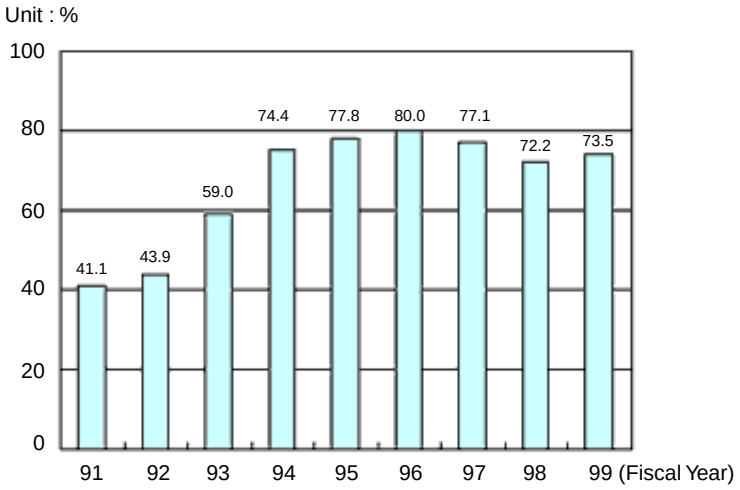
- Bumpers that are replaced at the dealer are now all returned for recycling. Plastics from the bumpers are then recycled into materials for parts such as engine under covers, battery trays, seat under trays, etc.
- Other sources of recycled material are also used for materials in automobile production. Recycled plastic bottles are used for insulation in the dashboard while recycled pulp is used for parts of the door trim.

Recycling in the manufacturing process

● Recycling factory wastes

We have encouraged recycling activities that promote the use of waste as a recycling resource. Through such efforts we have been able to reduce the amount of wastes that our factories produce. As an example, ash from waste that is burned is recycled for use in cement or roadbed materials; also wastes produced in the welding process are recycled into metal materials. After resins are removed from sand used in the casting process, 100% of the purified, fine grain sand is used in cement materials. Sludge produced in the painting process is used as sound absorbing materials, plastic wastes are used as material in blast furnaces and whetstone is used in fireproofing materials. Such vigorous efforts have led to a *recycle ratio of 73.5% in fiscal 1999. Aiming at our goal of "Zero Emissions" we are striving to reach a ratio of 78% in fiscal 2001.

Recycling ratio of industrial waste *



* Recycling ratio = volume of recycled materials/volume of waste X 100 (except metal wastes)

● Activities at overseas plants

At our Magyar Suzuki Corp. in Hungary, use of 20-liter paint cans was discontinued in favor of recyclable 1000-liter containers thereby eliminating the waste of paint cans in the painting process. (Reduced volume of waste materials: 12,505kg/year)

Recycling in Logistics

● Steel frames in knock down packaging

Steel frames used in automotive knock down packaging

Wood had always been used in the knock down shipment of large metal parts to foreign countries, however changing to steel has improved its quality and recyclability.

Steel frames for CBU motorcycle cases

In place of wood, we are now utilizing steel boxes when shipping complete motorcycles to overseas destinations.

● Changing cushion materials

Bubble pack used as a cushion in packaging has been discontinued in favor of other materials in order to reduce the amount of dioxin that results from incineration.

● Cardboard for outboard motor packaging

Part of our outboard lineup is manufactured in Thailand. We have eliminated the use of Styrofoam used inside the package of the small type outboard motors in favor of all cardboard packaging.

Other Types of Recycling

● Development and application of the bumper crushing machine

With a campaign started in 1994, to more effectively use our resources, we started recycling (the collection recycling as a resource) the plastic bumpers that are removed due to repairs or exchange at dealers. To reduce the cost of transporting these bumpers, we eventually developed a bumper crushing machine. The plastics recycled from the bumpers are then used in automobile parts.

Developed by Suzuki in January of 2000, this bumper crushing machine has been extremely helpful in reducing the cost of transportation while aiding in the recycling of bumpers. The small bumper crushing machine is designed to accommodate bumpers of different sizes and materials thus providing a machine that is more compact and lower in cost than regular crushing machines.

Because of the compact size of the crushing machine, it is easy to install in locations such as dealer service centers, etc. and provides crushing at central locations. As the crusher can reduce the size of a bumper to approximately one sixth of its original size, transporting the crushed bumper is much more cost effective than an entire unit.

Presently there are machines installed at eight service centers in our main dealerships in Kanto, Chubu and Kinki areas. Twelve locations in Hokkaido, Tohoku, Shikoku, Chugoku and Kyushu will have the machines installed by March of 2001. That will bring the total number of installed machines to twenty, covering an area from Hokkaido to Kyushu thus providing more than one machine per region.

Future plans call for the installment of more than one of these machines in each prefecture to encourage the recycling of bumpers.

[How bumpers are collected]

At the beginning of the program, we contracted a private transportation company to collect the bumpers. But, from April of 2000, coinciding with the installment of the bumper crusher, we switched to a packaged delivery service.

[How recycled bumpers are used]

The recycled material is used in a total of twenty parts such as seat under trays, battery trays, trunk side boxes, fuel tanks, under covers, etc.

● Freon Collecting Machines

To properly collect and dispose of specified Freon (CFC12) that has been used as a cooling catalyst in automobile air conditioners, we have installed Freon collecting machines in all of our 727 domestic service centers, dealers and used car lots by the end of March 2000.

● Recycled paper used in catalogs

We use 100%-recycled paper for our catalogs.

Concerning Environmental Issues 5: Social Contributions

Beautiful Earth

The SUZUKI Foundation Contributes to Research

Every year, the SUZUKI Foundation donates funds to assist in the research of environmentally related technologies such as improving fuel efficiency on internal combustion systems, purifying exhaust emissions, DME compression ignitions system, fuel battery, lead free solder, recycling, etc.

The following is a list of themes introduced in our research assistance programs from fiscal 1996 to 2000.

<A list of environmental research themes promoted by the SUZUKI Foundation>

Term: 1996 (131st term)-2000 (135th term)

No.	Research Themes	Fiscal Year
1	Evaluating the ability of rubber chip molding recycled from waste tires to alleviate shocks.	2000
2	Improving the characteristics of an ion exchange membrane for a solid high particle type fuel battery	2000
3	Unsteady spray characteristics and the air/fuel mixture process.	2000
4	Enhancing the combustion of the pre-mixture under high pressure	2000
5	Analysis of an unsteady spray combustion system for the effective use of super low quality fuels	2000
6	Research and development into a manufacturing process using voluntary osmotic phenomenon for a compound strengthened piston used in high efficiency and high output engines	2000
7	High speed sintering of zirconium in a microwave for use in bulkhead fuel cells	1999
8	Basic research on the combustion of DME pressure ignitions system	1999
9	Analysis of the reaction system of a direct methanol fuel cell	1999
10	Researching the thermal fatigue properties in environmentally friendly lead free solder	1999
11	Research and development into the prevention of global warming through the utilization of automobiles.	1998
12	Increasing the efficiency of a non-toxic, non resource dependant new type Cu2ZnSnS4 type film solar battery	1998
13	Public infrastructure system to promote fuel cell automobiles	1998
14	Exhaust emission purification system for diesel automobiles using pulse corona discharge	1997
15	Researching the characteristics of the load produced by fuel batteries	1997
16	Researching the disturbance in the engine cylinder of the pre-mixture combustion system	1997
17	Research into the development of a perfect garbage disposal machine for a zero emission society	1997
18	Influence on NOx formation by disturbance or mixture speed in the diffusion flame	1996
19	Analyzing the combustion conditions of super rarefied pre-mixture pressure auto ignition system	1996
20	Purifying recycled aluminum alloy by eliminating impurities	1996
21	Analysis and research for the modeling of the combustion event in an uneven pre-mixture chamber	1996

Local Cleaning Activities

We have contributed to the cleaning of local environments through our “Islands Clean Campaign” which is sponsored by labor organizations. Many of our employees join in these activities that clean beaches, rivers, parks, etc. throughout the year.

Exhibitions at Low Emission Automobile Shows, etc.

We have exhibited our automobiles and provided the public with test rides at low emission automobile shows, etc. at many locations.

<Results of Exhibitions in Fiscal 2000>

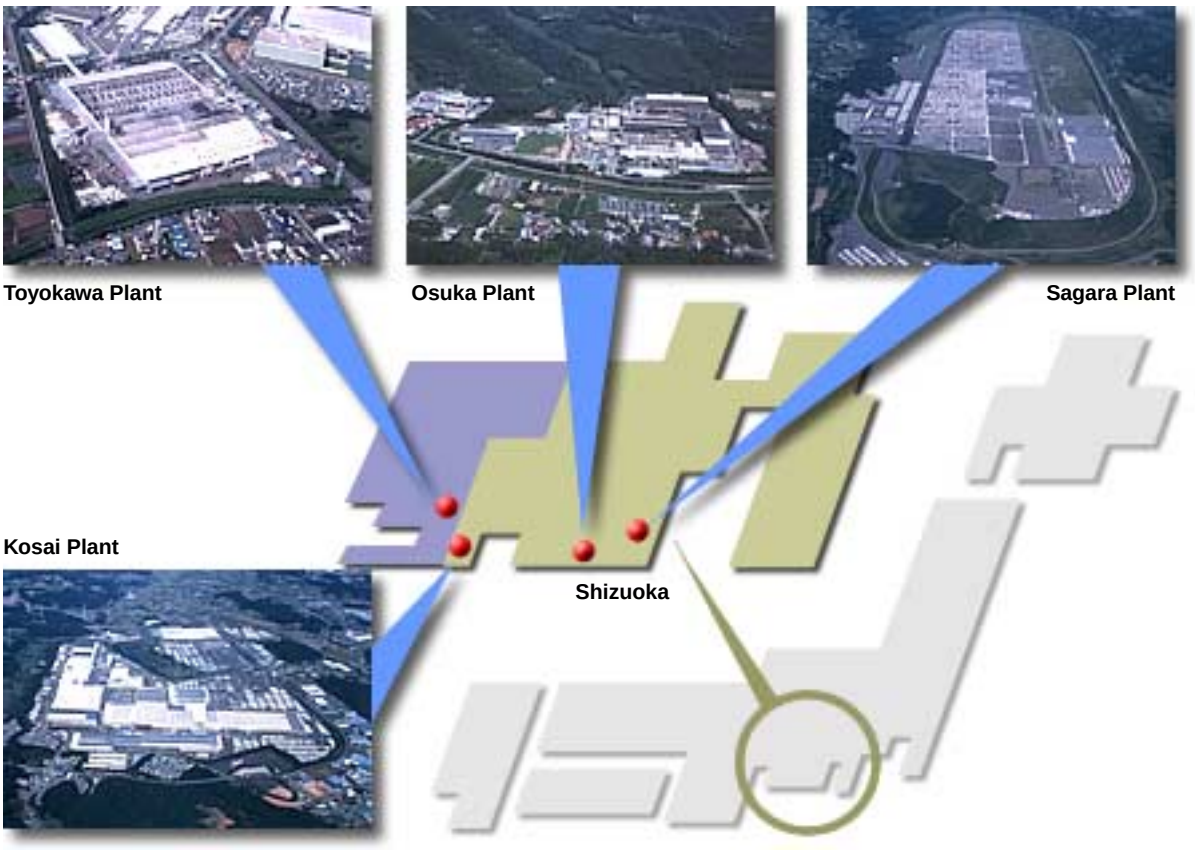
Name of Exhibition	Exhibition Details	Sponsor	Place	Date	Year
Low Emission Automobile Fair 2000	Exhibit of natural gas powered vehicles	Tokyo Metropolitan Gov. Environment Agency	Yoyogi Park	6/10 - 6/11	2000
Promoting Clean Energy Automobiles	Exhibit and test drive of natural gas powered vehicles	NEDO	Asia Pacific Trade Center (Osaka)	6/23 - 6/24	
CEV Test Drive in Sapporo	Exhibit and test drive of natural gas powered vehicles	BITI, Hokkaido / NEDO	Access Sapporo (Sapporo)	8/5 - 8/6	
Low Emission Automobile Fair	Exhibit of natural gas powered vehicles	Tottori-city	Tottori City Eco Station	8/7	
Volunteer Festival at Banpaku	Exhibit of natural gas and electric powered vehicles	Osaka-fu Suita-shi	Banpaku Memorial Park	8/27	
Low Emission Automobile Fair in Osaka	Exhibit and test drive of natural gas powered vehicles	Osaka city	Asia Pacific Trade Center (Osaka)	9/22 - 9/23	
Low Emission Automobile Fair in Nagoya 2000	Exhibit and test drive of natural gas powered vehicles	Nagoya Low Emission Automobile Fair Executive Committee	Nagoya City Hall Shyounai-Ryokuchi	9/30 - 10/1	
Low Emission Automobile Test Drive	Test drive of natural gas powered vehicles	Odawara-city	Odawara-city Flower Garden	10/7 - 10/8	
NGV2000 the 7th International Natural Gas Powered Automobile Meeting and Exhibition	Exhibit of natural gas powered vehicles	Japan Gas Association	Pacifico Yokohama	10/17 - 10/19	
Clean Energy Festa in Osaka	Exhibit of natural gas and electric powered vehicles	NEDO	Asia Pacific Trade Center (Osaka)	10/21 - 10/22	
Shizuoka University Techno Festa in Hamamatsu	Exhibit and test drive of natural gas and electric powered vehicles	Shizuoka University	Shizuoka University Hamamatsu Campus	11/11 - 11/12	
Shizuoka Environment, Volunteer, Technology Exhibition	Exhibit and test drive of natural gas and electric powered vehicles / Exhibit and test ride of electric assist bicycle	Shizuoka Environment, Volunteer and Technology Exhibition Executive Committee	Twin Messe Shizuoka (Shizuoka Prefecture)	11/23 - 11/25	
Clean Energy Festa In Yokohama	Exhibit of natural gas and electric powered vehicles	NEDO	Pacifico Yokohama	1/27 - 1/28	2001
Clean Energy Festa in Hiroshima	Exhibit of natural gas and electric powered vehicles	NEDO	Asia Pacific Trade Center (Osaka)	2/10 - 2/11	

Gaining ISO14001 Certification

To implement environmental preservation activities, it is necessary to establish environmental management, within the corporate management, for continued management. As an international standard for environmental management systems, the ISO 14001 standard helps companies and other organizations voluntarily conduct environmental protection activities regionally or on a global basis. In October of 1996 in Japan, it was established as a JIS regulation and terms required to set up an environmental management system were prescribed.

Our Kosai Plant received ISO 14001 certification in July of 1998, followed by the certification of our Osuka Plant and Sagara Plant in September of 1999 and our Toyokawa plant in December of 2000. Outside Japan, our Magyar Suzuki Corp. in Hungary received certification in April of 1998, our Maruti Udyog Ltd. in India in November of 1999 and our CAMI Automotive Inc. in Canada in June of 2000. Other plants in both Japan and abroad are moving to establish environmental management systems.

● Domestic Plants ●



● Overseas Plants ●

Magyar Suzuki Corporation (Hungary)

CAMI Automotive Inc.
(Canada)

Maruti Udyog Ltd. (India)

Environmental Accounting System

Our concept of environmental auditing

In order to continue and promote efficient environmental preservation activities, it is necessary to understand the cost of these activities and properly estimate their effects.

In this section, the term “environmental preservation” refers to issues such as the prevention of incidents that have an impact on the environment, controlling occurrences, eliminating impact, and restoration of any damage caused. To put it clearly:

1. Prevent pollution
2. Preserve our global environment
3. Recycle our resources
4. Other environmental preservation

As a part of our internal management system, the environmental audit allows management of the cost of environmental preservation, and by analyzing the cost and effect of environmental measures, the promotion of efficient and effective environmental investments can be carried out through proper decisions. Especially, in order to manufacture high performance products using less energy, resources and producing less waste, it is very important to manage the physical volume of energy, resources and waste, and comprehend the cost of environmental preservation, etc. The following is the costs related to environmental preservation in fiscal of 1999 (4/99-3/00). Official announcements on the effect of environmental preservation (data related to the physical volume and economical effects) are currently under consideration.

[Cost of Environmental Preservation] Fiscal 1999 (4/1999-3/2000)

Classification	Cost (¥100,000,000)
1) Cost Within the Corporation	24.0
2) Cost of the upstream and downstream	0.8
3) Cost of Management Activities	6.8
4) Cost of Research and Development	117.7
5) Cost of Social Activities	1.1
6) Cost of Environmental Damage	0.3
Total	150.7

The History of Suzuki's Environmental Activities

Year	Month	Activity
1971	7	The Environmental Protection Section is established within the Facilities Group of the Production Engineering Department as a section dedicated to environmental measures regarding production processes.
1977	4	Suzuki Group Safety, Hygiene and Pollution Issues Council is established.
1978	12	CARRY Van electric vehicle is developed.
1981	12	Symposium on Energy Conservation is held, sponsored by the Machinery Industry Fostering and Promoting Foundation (the current Suzuki Foundation).
1989	8	The Environmental Protection Council is established to strengthen the corporate-wide commitment to environmental issues, including products.
1990	3	Freon collectors are installed at dealers nationwide. Collection and recycling of specified Freon used for car air conditioners begins.
1991	12	Use of specific Freon for foaming (urethane form for seats, etc.) is abolished.
1992	1	The listing of the types of resinous materials used is begun.
	1	The SCVT continuously variable transmission is developed. (Mounted on a Cultus Convertible.)
	10	A natural gas powered scooter is developed.
	11	The Waste Countermeasure Group is established within the Production Engineering Department in order to reduce the volume of waste and to promote recycling.
	12	The Alto electric vehicle and Every electric vehicle are introduced.
1993	3	The "Environmental Protection Activities Plan" is established.
	5	The Environmental Protection Section and the Waste Countermeasure Group are unified to form the Environmental Industrial Waste Group.
	12	The replacement of car air conditioner refrigerant with a Freon substitute is complete.
1994	6	The collection and recycling of waste bumpers from distributors is begun.
	8	A facility is installed to recycle sludge contained in water discharge from the painting process, for reuse as asphalt sheet.
	8	Recycling of waste sand at a casting plant as cement material is begun.
1995	1	Waste incinerators are renewed and reduction in the volume of waste and use of discharged heat (steam) are expanded.
	8	Co-generation facilities are introduced at the Kosai Plant to promote the reduction of energy.
1996	4	The electric power-assist bicycle "LOVE" is introduced.
	5	The "Environmental Protection Action Plan (Follow Up Version)" is established
	12	Co-generation facilities are introduced at the Sagara Plant.
1997	3	A Wagon R mini vehicle which uses natural gas as fuel is developed.
	5	Greatly improved Alto electric vehicles and Every electric vehicles are introduced.
	10	Four-stroke outboard motor receives the "Technical Innovation Award" at the Chicago Boat Show.
	12	Manual for the Disassembly of Vehicles is prepared and distributed to dealers.
1998	2	Co-generation facilities are introduced at the Osuka Plant.
	2	An Initiative Voluntary Action Plan for the Recycling of Used Automobiles is established.
	4	Magyar Suzuki, a manufacturing plant in Hungary, gains ISO 14001 certification.
	7	The Kosai Plant gains ISO14001 certification.
	10	A mini vehicle equipped with a lean burn engine, the "LEV" is introduced.
	10	For the second time in two years, a four-stroke outboard motor receives the "Technical Innovation Award" at the Chicago Boat Show.
	12	Develop an environmentally benign pipe bending process.
1999	3	A new catalyst for motorcycles is developed. (Mounted on the "LET's II" scooter)
	3	A turbocharged Alto, the "Alto Epo Turbo" is introduced.
	5	A highly fuel efficient Alto, utilizing an "Sc Lean Burn" and CVT is introduced.
	6	A "Wagon R vehicle powered by natural gas" (CNG) is introduced.
	8	A new model Every electric vehicle is introduced.
	9	The Osuka Plant and Sagara Plant gain ISO 14001 certification.
	10	An Alto equipped with the idling stop system is introduced.
	10	"SUZUKI Pu-3 Commuter" receives special award for "The Best Concept Car" at the Tokyo Motor Show.
	10	Electric Assist bicycle "LOVE" series undergoes full model change.
	11	Maruti Udyog Ltd. in India gains ISO 14001 certification.
	11	Environmentally benign table top industrial washers, the "SUC-300H, 600H" are introduced that cleanse using ultra sonic waves in place of organic solvents.
	12	The "Every natural gas (CNG) powered bicycle" is introduced.
	12	Four-stroke outboard motors that deliver quiet operation and low vibration, the "DF25" and "DF30" are introduced.
2000	1	Developed compact bumper crushing machine.
	6	Cami Automotive Inc. in Canada gains ISO 14001 certification.
	7	Packaging for transport of Suzuki's three and four wheel, electric "Senior Car" receives the "Logistics Prize" at the 2000 Japan Packing Contest.
	10	Electric Assist bicycle "LOVE" series undergoes full model change.
	11	Packaging for transport of Suzuki's three and four wheel, electric "Senior Car" receives the "World Star" prize at the World Packaging Contest.
	12	Big four-stroke outboard motors that deliver quiet operation and low vibration, the "DF90" and "DF115" are introduced.
	12	The Toyokawa Plant gains ISO 14001 certification.
2001	1	Lead is eliminated from the painting process in domestic motor cycle and automobile plants.
	3	The installation of bumper crushing machines in Japan is expanded on a nationwide scale.