
MAINTENANCE AND SERVICEABILITY

1 Introduction

The Road Transport Vehicle Act (Act No. 185 of 1951) was amended by Act No. 14 on May 24, 2019. The purpose amending the law is to establish a system to ensure integrated safety of autonomous vehicles throughout the use stages ranging from design to manufacture.

The amendments concerning automobile maintenance and related matters introduce new concepts for the performance and functionality maintenance management, customization, inspection and servicing, and review of vehicles in use in anticipation of a road traffic society where autonomous driving level 3 (autonomous in limited areas, with driver intervention in difficult situations), and level 4 (autonomous in limited areas, with the system responding even in difficult situations). The amendments also establish a system to maintain the technical information necessary for inspection, servicing and reviews, as well as a new certification system.

More specifically, automatically operated devices that use a program to automatically operate a vehicle have been defined as devices subject to the safety standards, and such devices are required to comply with technical standards. In the near future, the full-scale introduction of driving support devices and the increase in automatic driving devices, along with the introduction of partial automatic driving will require technologies, information, equipment and other systems that have not been maintained so far. The disassembly and maintenance approach used for maintenance or customization made after removing the automatically operated device or affecting operations assumed actual mechanical tasks. However, since automatically operated devices use a program to automatically operate the vehicle, the concept and scope of disassembly and maintenance has been expanded, and maintenance tasks on automatically operated devices, including upgrading programs, have been designated as special maintenance. The amended law

stipulates that operators carrying out such tasks must obtain a certification from the director of their regional transport bureau. In addition, automobile manufacturers are obliged to provide certified maintenance companies with the technical information necessary for the inspection and maintenance of advanced technology.

Since the customization system in effect until now did not cover program upgrades through communications, a new specific customization rule was established for customizations and performance modifications applied to automatically operated devices. In order to prevent specific customization that do not conform with the safety regulations, a system requiring operators who make specific modification to first obtain authorization from the Minister of Land, Infrastructure, Transport and Tourism involving an examination of the contents of the customization by the National Agency for Automobile and Land Transport Technology.

As driving support and autonomous driving technologies advance and become widespread, concerns that a malfunction could cause erroneous operation or an accident have prompted the need to introduce an electronic inspection system for renewal inspections. Consequently, a maintenance environment that supports electronic inspections (OBD) has been established. Manufacturers submit the technical information necessary to perform electronic inspections to the National Agency for Automobile and Land Transport Technology the Light Motor Vehicle Inspection Organization, and the designated maintenance company (inspector). That information will be centrally managed by the National Agency for Automobile and Land Transport Technology and made available for use by inspection operators nationwide.

It was also stipulated that the digitization of automobile inspection certificates (IC card conversion) would be enforced within four years of promulgation. At the same time, a system involving the government outsourcing the tasks of recording vehicle certificates (IC cards) and

printing inspection stickers for the renewal inspections performed by designated maintenance companies was established.

The amended Act will come into effect within one year of its promulgation.

1. 1. Vehicle Market in 2019

In 2019, 5,195,216 new vehicles were sold in Japan. This was a decrease of 76,851 vehicles or 1.5% compared to the previous year, when 5,272,067 new vehicles were sold.

A more detailed analysis of new vehicle sales reveals that the number of registered vehicles was 3,284,870. This was a decrease of 63,073 vehicles or 1.9% compared to the previous year.

At the same time, sales of mini-vehicles reached 1,911,346 vehicles, a decrease of 13,778 vehicles or 0.7% compared to the previous year.

Mini-vehicles accounted for 36.8% of new car sales, increasing for the third consecutive year.

The number of used cars sold was 3,841,688, an increase of 4,206 vehicles or 0.1% from the previous year. At the same time, the number of mini-vehicles was 3,146,470, an increase of 32,554 or 1.1% from the previous year. This means that sales of mini-vehicles and new vehicles have increased for three years in a row.

Sales of Japanese hybrid vehicles (HVs) among registered vehicles in 2019 were 1,083,414 vehicles, a decrease of 14,513 vehicles (1.3%) from the previous year. The number of imported cars was 15,290, a significant increase of 8,477 or 124.4% from the previous year.

The number of Japanese plug-in hybrid vehicles (PHVs) sold was 14,924 vehicles, a decrease of 4,806 vehicles (24.4%) from the previous year. The number of imported cars was 2,698, a decrease of 812 or 23.1% from the previous year.

The number of Japanese electric vehicles (EVs) was 19,894, a decrease of 5,870 (22.8%) from the previous year. The number of imported cars was 1,427, an increase of 726 or 103.6% from the previous year.

The number of fuel cell vehicles (FCVs) was 690 (5 imported vehicles), an increase of 84 units or 13.9% from the previous year.

According to a summary by the Ministry of Land, Infrastructure, Transport and Tourism, the installation rate of driving assistance technology in new passenger cars produced in Japan in 2018 increased by 6.8 points from 77.8% in 2017 to 84.6% for automatic braking. The instal-

lation of acceleration suppression device when the pedal is mistakenly pressed increased by 11.9 points from 65.2% to 77.1%. The installation of lane keep assist increased by 7.1 points from 19.8% to 26.9%. Adaptive cruise control installation rose by 5.8% from 47.5% to 53.3%. Statistics on the spread of driving support technologies have been collected since 2012, and the rate of installation in new vehicles continues to increase year after year.

1. 2. Vehicle Ownership Trends in 2019

The number of vehicles owned at the end of December 2019 was 82,341,762, representing a tenth consecutive year of increase since 2010, and setting a record high again for the eighth consecutive year. It increased by 0.2% to 148,934 units from the previous year.

By model type, the number of 4-wheeled registered vehicles was 47,380,644, a decline of 70,770 (0.1%) from the previous year.

The number of 4-wheeled mini-vehicles owned in Japan broke through the 30-million-vehicle mark in 2015 and it continues to increase. By the end of December 2019, it stood at 31,216,609 vehicles. It increased by 0.7% to 203,236 vehicles from the previous year, but the growth rate decreased.

The number of inspected 2-wheeled vehicles owned in Japan also increased to 1,730,391. It increased by 1.5% to 25,417 vehicles from the previous year. The rise in vehicle ownership increased for 28 consecutive years, and growth rate also increased for two consecutive years. The number of 2-wheeled mini-vehicles owned in Japan is 1,992,698. It decreased by 0.5% to 10,637 units from the previous year, falling below 2 million units.

The number of mini-vehicles owned in Japan as a percentage of the total number of 4-wheeled registered and mini-vehicles (78,597,253) rose by 0.2% from the previous year, reaching a record 39.7%, leveling off just below the 40% mark again.

According to a survey by the Automobile Inspection & Registration Information Association, the average age of registered passenger cars at the end of March 2019 was 8.65 years. This is 0.05 years longer than the previous year, and the average vehicle age has continued to rise for 27 years in succession, breaking the oldest age record for the 25th consecutive year. The average vehicle age has increased by 1.17 years compared to 10 years earlier in 2009. The average service age of registered passenger cars was 13.26 years, which was 0.02 year lon-

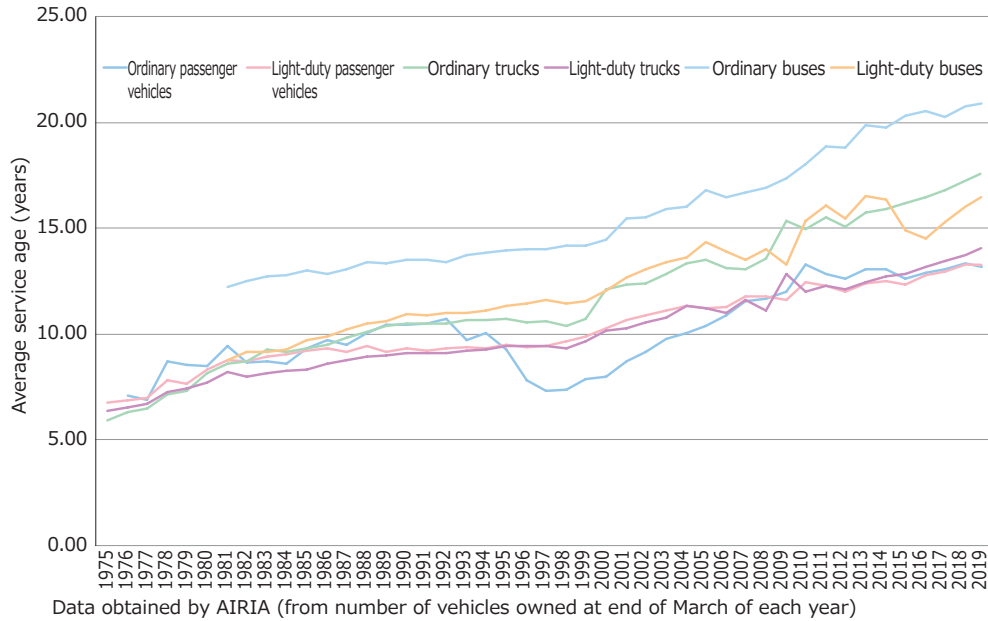


Fig. 1 Trends in average number of years of usage (average vehicle age) according to vehicle type.

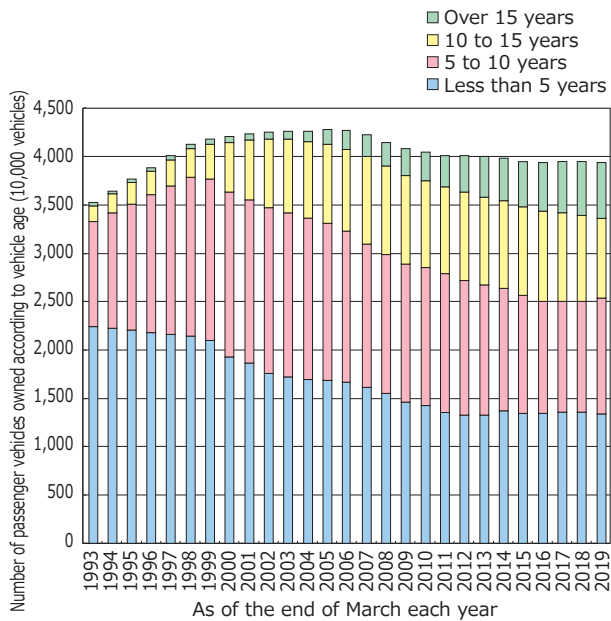


Fig. 2 Trends in vehicle age breakdown of the total number of passenger vehicles owned.

ger than the previous year, setting a record high for four consecutive years. The average service vehicle age has increased by 1.58 years compared to 10 years ago.

Similarly, the average age of registered trucks was 11.42 years at the end of March 2019, 0.01 years longer than the previous year, and the highest on record for the 27th year in a row. By vehicle model type, the average vehicle age of ordinary trucks was 12.20 years, 0.001 years younger than the previous year. The average vehi-

cle age of light-duty trucks was 10.89 years, 0.01 years longer than the previous year. This sets a record for the 28th consecutive year.

The average vehicle age of buses was 11.83 years, 0.02 years longer than the previous year. In addition, the average vehicle age of special purpose vehicles was 11.06 years, 0.07 years longer than the previous year. The average vehicle age of large special purpose vehicles was 20.79 years, 0.10 years longer than the previous year, and that of light-duty 2-wheeled vehicles was 15.56 years, 0.28 longer than the previous year.

Figure 1 shows the change in the average number of years of usage for different types of registered vehicle models.

Figure 2 shows the change in the breakdown of passenger car ownership by vehicle age. As of the end of March 2019, the number of vehicles aged 10 years or older was 14,128,459, a decrease of 376,078 from the previous year, amounting to a 0.9 points drop, to 35.8%.

According to a survey by the Light Motor Vehicle Inspection Organization, the average vehicle age of registered mini-vehicles at the end of December 2019 was 8.60 years, which was 0.10 years longer than the previous year. This is 2.47 years, or more than 40%, longer than the 6.13 years in 2005, the first year records for mini-vehicles were taken. The average vehicle age has risen for 14 consecutive years.

The average vehicle age of mini-vehicle trucks at the

end of December 2019 was 12.81 years, which was 0.12 years longer than the previous year.

The average years of usage of passenger mini-vehicles at the end of December 2019 was 14.92 years, which was 0.19 years longer than the previous year. Therefore, the average vehicle age has increased by 3.43 years compared the age of 11.49 years recorded in 2005, 14 years earlier. The average years of usage of mini-vehicle trucks at the end of December 2019 was 16.86 years, which was 0.34 years longer than the previous year. Therefore, the average years of usage has increased by 4.08 years compared the usage of 12.78 years recorded in 2005, 14 years earlier.

Sales of Japanese hybrid vehicles (HVs) among registered vehicles in March 2019 were 8,484,948 vehicles, an increase of 945,854 vehicles (12.5%) from the previous year.

At the same time, the number of electric vehicles exceeded 100,000, an increase of 14,564 (15.6%) from the previous year, reaching 107,709 vehicles.

The number of fuel cell vehicles was 3,036, an increase of 587 or 24.0% from the previous year. The total number of electric vehicles such as HVs, PHVs, EVs, FCVs was 8,595,693, an increase of 961,005 vehicles (12.6%) from the previous year. At the end of March of the same year, the proportion of electric vehicles owned to the 81,789,318 total number of vehicles owned, increased by 1.1 points from 9.4% in the previous year to 10.5%.

The number of electric vehicles owned among mini-vehicles at the end of March 2020 was 19,242, an increase of 384 vehicles (2.0%) from the previous year. A breakdown of these owned vehicles reveals that 18,640 of them are type designation vehicles, 318 of them are customized type designation vehicles, and the remaining 284 are parallel imports or other types of vehicles.

2 Recent Trends in the Vehicle Maintenance Industry

The Japan Automobile Service Promotion Association (JASPA) conducted its 2018 survey of the vehicle repair and maintenance industry at the end of June 2018. The targets of the survey were vehicle repair and maintenance businesses defined by the Road Transport Vehicle Act. The survey was sent to approximately 20% of the 91,883 businesses according to category and size, and responses were received from 8,193 of these workplaces.

The sales volume and other values reported were

those from the accounting period closest to the time of the survey at the end of June 2019 (e.g., from the 2018 fiscal year). According to this survey, the total maintenance sales were 5,621.6 billion yen, an increase of 92.1 billion yen (1.7%) compared to the results of the previous year's survey.

For the purpose of the 2016 vehicle repair and maintenance industry survey, the target vehicle repair and maintenance businesses were classified as follows: full-time vehicle maintenance shops (workplaces other than vehicle dealers where maintenance sales account for over 50% of total sales), maintenance shops run as an additional business (workplaces where sales from other businesses, such as vehicle sales, parts and accessory sales, insurance sales, or gasoline sales, account for over 50% of total sales), maintenance shops at vehicle dealers (workplaces at companies that have signed an exclusive distributor agreement with an automaker or a domestic exclusive retailer), and private owner-run maintenance shops (mainly workplaces that perform maintenance work on vehicles that are privately owned).

2. 1. Maintenance Facilities and Maintenance Personnel

(1) Outline of Maintenance Facilities

At the time of the survey, as of June 30, 2019, the number of the vehicle repair and maintenance companies was 72,845, a decrease of 173 companies (0.2%) from the previous year. This was the fifth consecutive year that the number of companies decreased.

In contrast, the total number of workplaces (certified plants) was 91,605 plants, a decrease of 0.3% from the previous year to 278 work places. This is the fourth consecutive year that this value has decreased.

The number of the full-time vehicle maintenance shops was 56,032, accounting for 61.2% of the total number of workplaces by type of business, a decrease of 238 plants or 0.4% from the previous year. Maintenance shops that were run as an additional business accounted for 15,702 workplaces (17.1% of the total), a decrease of 21 plants or 0.1% compared to the previous year. The number of maintenance shops at the dealers accounted for 16,349 (17.8% of the total), an increase of 97 plants from the previous year. This represented a second consecutive year of increase for dealer-based maintenance shops. The number of private owner-run maintenance shops was 3,621 (3.9% of the total), a decrease of 16 plants or 3.2% compared to the previous year (Table 1).

The number of private workshops reached 387,000 in the 2019 survey, an increase of twelve shops over the previous year. This number has increased consistently since the introduction of the system in 1962, and narrowly maintained that tendency in the latest survey. The number of workplaces that have obtained this designation (i.e., the designation acquisition ratio) is 32.8% of the total number of workplaces (Table 2).

Examining the designation acquisition ratio according to the different types of businesses shows that 13,460 of the total number of full-time vehicle maintenance shops (56,032) have obtained the designation, an increase of 35 shops (0.9%) compared to the previous year. This represents a designation acquisition ratio of 24.0%, as well as an increase of 1,019 shops (8.2%) compared to 10 years earlier in 2009.

In the case of maintenance shops run as an additional business, 4,815 of the total of 15,702 have obtained the designation, a decrease of 24 plants (0.5%) from the previous year. This represents a designation acquisition ratio of 30.7%, as well as an increase of 22 shops (0.5%) compared to the number in 2009.

Among the 16,349 maintenance shops at vehicle dealers, 10,650 plants have obtained the designation. This is an increase of 66 (0.6%) from the previous year and represents a designation acquisition ratio of 65.1%, but also constitutes a decrease of 25 shops (0.2%) from 2009.

Of the 3,522 private owner-run maintenance shops, 1,162 have obtained the designation. This is a decrease of 65 (5.3%) from the previous year, for a designation acquisition ratio of 33.0%. It also represents an increase of five shops (0.4%) from 2009.

Table 2 compares the scale of the maintenance shops based on the number of vehicle maintenance personnel employed there and other factors.

At the time of this survey at the end of June 2019, there were 72,461 private companies after subtracting the number of public offices. However, at the time of the June 2009 survey 10 years earlier, there were 72,697 private companies after subtracting the number of public offices. Table 3 compares them based on the number of employees.

Table 1 Maintenance sales volume, composition ratio, and rate of change compared to previous year according to type of business and work content.

(Sales volume units: hundred million yen)

Business type		Contents		Vehicle inspection (shaken) maintenance				Regular inspection and maintenance				Collision repair	Other maintenance	Total	Number of shops and composition ratio	Number of mechanics and composition ratio
		2 years	1 year	Subtotal	1 year	6 months	3 months	Total								
Full-time	Amount of sales	5,639	3,364	9,003	350	117	311	778	4,083	5,580	19,444	56,032	161,558			
	Proportion	29.0%	17.3%	46.3%	1.8%	0.6%	1.6%	4.0%	21.0%	28.7%	100.0%	61.2%	48.0%			
	Change in sales volume compared to previous year	4	-25	-21	40	1	1	42	152	-93	80	-238	-1,264			
	Ratio of increase or decrease compared to previous year	100.1%	99.3%	99.8%	112.9%	100.9%	100.3%	105.7%	103.9%	98.4%	100.4%	99.6%	99.2%			
Additional business	Amount of sales	2,459	622	3,081	178	34	48	260	1,325	2,164	6,830	15,702	50,359			
	Proportion	36.0%	9.1%	45.1%	2.6%	0.5%	0.7%	3.8%	19.4%	31.7%	100.0%	17.1%	14.9%			
	Change in sales volume compared to previous year	2	25	27	-3	0	8	5	43	42	117	-21	-605			
	Ratio of increase or decrease compared to previous year	100.1%	104.2%	100.9%	98.3%	100.0%	120.0%	102.0%	103.4%	102.0%	101.7%	99.9%	98.8%			
Full-time + additional business	Amount of sales	8,098	3,986	12,084	528	151	359	1,038	5,408	7,744	26,274	71,734	211,917			
	Proportion	30.8%	15.2%	46.0%	2.0%	0.6%	1.4%	4.0%	20.6%	29.5%	100.0%	78.3%	62.9%			
	Change in sales volume compared to previous year	6	0	6	37	1	9	47	195	-51	197	-259	-1,869			
	Ratio of increase or decrease compared to previous year	100.1%	100.0%	100.0%	107.5%	100.7%	102.6%	104.7%	103.7%	99.3%	100.8%	99.6%	99.1%			
Dealer	Amount of sales	7,444	1,633	9,077	2,075	360	249	2,684	5,507	10,404	27,672	16,349	109,821			
	Proportion	26.9%	5.9%	32.8%	7.5%	1.3%	0.9%	9.7%	19.9%	37.6%	100.0%	17.8%	32.6%			
	Change in sales volume compared to previous year	-42	233	191	29	37	61	127	391	36	745	97	520			
	Ratio of increase or decrease compared to previous year	99.4%	116.6%	102.1%	101.4%	111.5%	132.4%	105.0%	107.6%	100.3%	102.8%	100.6%	100.5%			
Private owner-run	Amount of sales	704	340	1,044	39	2	10	51	441	734	2,270	3,522	15,159			
	Proportion	31.0%	15.0%	46.0%	1.7%	0.1%	0.4%	2.2%	19.4%	32.3%	100.0%	3.8%	4.5%			
	Change in sales volume compared to previous year	-30	31	1	-23	-23	-5	-51	-13	42	-21	-116	-192			
	Ratio of increase or decrease compared to previous year	95.9%	110.0%	100.1%	62.9%	8.0%	66.7%	50.0%	97.1%	106.1%	99.1%	96.8%	98.7%			
Total	Amount of sales	16,246	5,959	22,205	2,642	513	618	3,773	11,356	18,882	56,216	91,605	336,897			
	Proportion	28.9%	10.6%	39.5%	4.7%	0.9%	1.1%	6.7%	20.2%	33.6%	100.0%	100.0%	100.0%			
	Change in sales volume compared to previous year	-66	264	198	43	15	65	123	573	27	921	-278	-1,541			
	Ratio of increase or decrease compared to previous year	99.6%	104.6%	100.9%	101.7%	103.0%	111.8%	103.4%	105.3%	100.1%	101.7%	99.7%	99.5%			

Table 2 Number of vehicle maintenance-related personnel.

Scale of business	A1 (2 to 3 people)	A2 (4 to 10 people)	B (11 to 20 people)	C (21 to 30 people)	D (31 people or more)	Total	Change from previous year	Rate compared to previous year
Number of shops	50,486	36,929	3,604	448	138	91,605	-278	99.7%
Number of shops that obtained designation		27,019	2,638	328	102	30,087	12	100.0%
Acquisition ratio		73.2%	73.2%	73.2%	73.9%	32.8%		
Total number of personnel	150,880	297,374	66,730	14,307	7,202	536,493	1,075	100.2%
Number of female personnel within that total	30,913	41,523	5,964	1,025	437	79,862	489	100.6%
Total number of maintenance personnel	118,977	213,952	49,481	10,908	5,817	399,135	-239	99.9%
Number of female maintenance personnel within that total	10,109	6,423	649	130	98	17,409	86	100.5%
Number of Class 1 auto mechanics	1,362	6,830	1,798	167	197	10,354	-19	99.8%
Number of female mechanics within that total	29	62	0	2	7	100	-25	80.0%
Number of Class 2 auto mechanics	77,929	153,942	34,294	6,748	3,541	276,454	552	100.2%
Number of female mechanics within that total	1,879	1,750	231	25	25	3,910	-155	96.2%
Number of Class 3 auto mechanics	18,097	24,786	4,965	1,488	753	50,089	-2,074	96.0%
Number of female mechanics within that total	4,588	1,552	82	22	4	6,248	-167	97.4%
Total number of mechanics	97,388	185,558	41,057	8,403	4,491	336,897	-1,541	99.5%
Number of female mechanics within that total	6,496	3,364	313	49	36	10,258	-347	96.7%

The number of women was also surveyed starting in June 2014.

Table 3 Number of businesses according to number of employees

	2 to 5 people	6 to 10 people	11 to 15 people	16 to 20 people	21 to 30 people	31 to 50 people	51 to 100 people	101 to 300 people	More than 300 people	Private company total	Public offices	Overall total
July 2009	28,079	23,309	9,866	5,224	3,971	1,807	338	101	2	72,697	164	72,861
July 2019	40,404	15,629	5,417	2,386	2,547	1,562	1,827	1,823	866	72,461	384	72,845
Change	12,325	-7,680	-4,449	-2,838	-1,424	-245	1,489	1,722	864	-236	220	-16

(2) Outline of Mechanics and Maintenance Personnel

As of the end of June 2019, the total number of maintenance-related personnel was 536,493, an increase of 1,075 or 0.2% from the previous year.

According to the type of business, the number of mechanics was 258,190 people, an increase of 3,320 or 1.3% from the previous year. The number of mechanics for maintenance shops run as an additional business was 89,823 people, a decrease of 2,879 people or 3.1% from the previous year. The number of mechanics for the dealers was 167,371 people, an increase of 1,347 people or 0.8% from the previous year. The number of mechanics for private owner-run businesses was 21,109 people, a decrease of 713 people or 3.3% from the previous year. This is the eighth consecutive year that this value has decreased.

The number of maintenance personnel (shop workers) was 399,135, a decrease of 293 people from the previous year. This was the eighth consecutive year that this number decreased.

The number of mechanics was 336,897 people, an increase of 1,541 (0.5%) from the previous year. The number of female mechanics within this total has been recorded since the June 2014 survey, and that year there were 9,527. Since then, the number increased successively in 2015 and 2016, but peaked at 10,935 in 2016, and began to decline. In the June 2019 survey, it was 10,258, a decrease of 347 from the previous year.

Tables 1 and 2 show the current situation of maintenance-related personnel in Japan.

The average age of maintenance personnel continues to rise, and the average age in 2019 was 45.5 years, which is 0.2 years older than the previous year. By type of business, full-time vehicle maintenance shops personnel showed the most significant increase with an average age of 50.9 years old, 0.1 years older compared to the previous year. The youngest were the maintenance personnel at dealers, who were nevertheless also 0.2 years older, reaching 35.5 years old.

2. 2. Demand for Vehicle Maintenance

(1) Trends in Total Maintenance Sales Volume

The total maintenance sales volume in the 2019 survey of the situation in the vehicle maintenance industry (results from the 2018 fiscal year) was 5,621.6 billion yen. Table 1 compares the maintenance sales volume generated by full-time vehicle maintenance businesses, those run as an additional business, those at dealers, and those at private owner-run businesses. It also compares the sales volume according to the content of the work performed, such as shaken vehicle inspection and maintenance, regular inspection and maintenance, collision repairs, and other maintenance (e.g., extraordinary maintenance due to a breakdown or malfunction, simple maintenance such as oil changes, voluntary inspection and maintenance requested by the owner, re-inspection of a vehicle issued a limited vehicle inspection certificate, or customization services).

Compared by type of business, the total maintenance sales in the entire full-time vehicle maintenance businesses was 1,944.4 billion yen, an increase of 8 billion yen or 0.4% from the previous year. Breaking down the sales of full-time vehicle maintenance businesses as a whole by work category, the sales of vehicle inspection (shaken) maintenance were 900.3 billion yen, a decrease of 2.1 billion yen or 0.2% from the previous year. This accounted for 46.3% of the total maintenance sales. Regular inspection and maintenance sales amounted to 77.8 billion yen, an increase of 4.2 billion yen (5.7%) compared to the previous year, and accounted for 4.0% of the total sales. Collision repairs amounted to 408.3 billion yen, an increase of 15.2 billion yen (3.9%) compared to the previous year, and accounted for 21.0% of the total sales. Other maintenance sales were 558 billion yen, a decrease of 9.3 billion yen or 1.6% from the previous year, and accounted for 28.7% of the total sales.

The overall sales of the maintenance shops run as an additional business were 683 billion yen, an increase of 11.7 billion yen (1.7%) from the previous year. Breaking the overall sales of vehicle maintenance businesses run as an additional business down by work category, the sales of vehicle inspection (shaken) maintenance were 308.1 billion yen, an increase of 2.7 billion yen or 0.9% from the previous year. This represents 45.1% of the overall sales of the vehicle maintenance businesses run as an additional business. Regular inspection and maintenance sales amounted to 26 billion yen, an increase of 500

million yen (2.0%) compared to the previous year, and accounted for 3.8% of the regular inspection and maintenance to the total sales. Collision repairs sales were 132.5 billion yen, an increase of 4.3 billion yen (3.4%) from the previous year, and accounted for 19.4% of the total sales. Other maintenance sales were 216.4 billion yen, an increase of 4.2 billion yen (2.0%) from the previous year, and accounted for 31.7% of the total sales.

In contrast, the overall sales of dealers were 2,767.2 billion yen, an increase of 74.5 billion yen (2.8%) from the previous year. Breaking down the overall sales of the dealers by work category, sales of vehicle inspection (shaken) maintenance were 907.7 billion yen, an increase of 19.1 billion yen or 2.1% from the previous year. This accounted for 32.8% of the total sales. Regular inspection and maintenance sales amounted to 268.4 billion yen, an increase of 12.7 billion yen or 5.0%, from the previous year, and accounted for 9.7% of the total sales.

Collision repairs amounted to 550.7 billion yen, an increase of 39.1 billion yen (7.6%) compared to the previous year, and accounted for 19.9% of the total sales. Other maintenance sales were 1,040.4 billion yen, an increase of 3.6 billion yen (0.3%) from the previous year, and accounted for 37.6% of the total sales.

The overall sales of private owner-run businesses were 227 billion yen, an increase of 2.1 billion yen (0.9%) from the previous year. Breaking down the overall sales of private owner business by work category, sales of vehicle inspection (shaken) maintenance were 104.4 billion yen, an increase of 100 million yen or 0.1% from the previous year. This accounted for 46.0% of the total sales. The sales of regular inspection and maintenance were 5.1 billion yen, a decrease of 5.1 billion yen (50.0%) from the previous year. This accounted for 2.2% of the total sales. The sales of collision repairs were 44.1 billion yen, a decrease of 1.3 billion yen (2.9%) from the previous year, and accounted for 19.4% of the total sales. The sales for other maintenance were 73.4 billion yen, an increase of 4.2 billion yen (6.1%) from the previous year, and accounted for 32.3% of the total sales.

Breaking down the overall maintenance sales total of 5,621.6 billion yen by work category, sales of vehicle inspection (shaken) maintenance were 2,220.5 billion yen, an increase of 19.8 billion yen or 0.9% from the previous year. This accounted for 35.9% of the total maintenance sales. The sales for regular inspection and maintenance were 377.3 billion yen, an increase of 12.3 billion yen

(3.4%) from the previous year. This accounted for 6.7% of the total maintenance sales. The sales of collision repairs were 1,135.6 billion yen, an increase of 57.3 billion yen (5.3%) from the previous year. This accounted for 20.2% of the total maintenance sales. The sales of the other maintenance were 1,888.2 billion yen, an increase of 2.7 billion yen (0.1%) from the previous year. This accounted for 33.6% of the total maintenance sales.

The sales of collision repairs increased for the first time in six years.

(2) Average Number of Vehicles Serviced According to Type of Business and Work Content

The average number of vehicles serviced at a single shop per year was 1,685, an increase of 27 vehicles or 1.6% from the previous year. Broken down according to the content of the work that was performed, the number of vehicles brought in for shaken vehicle inspection and maintenance service per shop was 373, or 10 vehicles (2.8%) more than in the previous year. The number of vehicles brought in for shaken vehicle inspection and maintenance service was 22.1% of the total number of serviced vehicles. The number of vehicles serviced for regular inspection and maintenance was 271, an increase of 18 vehicles (7.1%) from the previous year, and accounted for 16.1% of the total. The number of vehicles serviced for the collision repairs was 92 vehicles, an increase of 9 vehicles (10.8%) from the previous year, and accounted for 5.5% of the total. The number of vehicles serviced for other maintenance was 949 vehicles, a decrease of 10 vehicles (1.0%) from the previous year, and accounted for 56.3% of the total.

By work category, the number of vehicles serviced at full-time vehicle maintenance shops was 844 vehicles, an increase of 57 vehicles (7.2%) from the previous year. The number of vehicles serviced at maintenance shops run as an additional business was 1,343 vehicles, an increase of 52 vehicles (4.0%) from the previous year. The number of vehicles serviced at the dealer shops was 4,895 vehicles, a decrease of 146 vehicles (2.9%) from the previous year.

Furthermore, looking at the content of maintenance work according to the type of business, the average number of vehicles brought into full-time vehicle maintenance businesses for shaken vehicle inspection and maintenance during the year was 287 per shop, a decrease of 16 vehicles (5.9%) from the previous year. This accounted

for 34.0% of all the vehicles brought into those shops for maintenance. For maintenance shops run as an additional business, the average number of vehicles brought into was 356 per shop, a decrease of 5 vehicles (1.4%) from the previous year representing 26.5% of the total. At the same time, the average number of vehicles brought into maintenance shops at dealers for shaken vehicle inspection and maintenance was 685, a decrease of 7 vehicles (1.0%) from the previous year and making up 14.0% of the total.

Next, the average number of vehicles brought into full-time vehicle maintenance businesses for regular inspection and maintenance during the year was 88 vehicles per shop, an increase of 8 vehicles (10.0%) from the previous year. This accounted for 10.4% of all the vehicles brought into those shops for maintenance during the year. For maintenance shops run as an additional business, the average number of vehicles brought in was 117 per shop, an increase of 9 vehicles (8.3%) from the previous year, and accounting for 8.7% of the total. The average number of vehicles brought into maintenance shops at dealers was 1043 vehicles per shop, an increase of 46 vehicles (4.6%) compared to the previous year, and accounting for 21.3% of the total.

The average number of vehicles brought in for collision repairs during the year was 68 vehicles per shop at full-time vehicle maintenance businesses, a decrease of 5 vehicles (7.9%) from the previous year. This accounted for 8.1% of all the vehicles that were brought into those shops for maintenance service. For maintenance shops run as an additional business, the average number of vehicles brought in was 72 per shop, a decrease of 3 vehicles (4.0%) from the previous year, and accounting for 5.4% of the total. The average number of vehicles brought into maintenance shops at dealers was 193 vehicles per shop, an increase of 34 vehicles (21.4%) compared to the previous year, and accounting for 3.9% of the total.

Other maintenance accounted for the largest portion of vehicles brought in for maintenance or service. The average number of vehicles brought into full-time vehicle maintenance businesses during the year was 401 per shop, an increase of 28 vehicles (7.5%) from the previous year. This accounted for 47.5% of all the vehicles brought into those shops for maintenance during the year. At maintenance shops run as an additional business, the average number of vehicles brought in for other maintenance was 798 per shop, an increase of 41 vehicles (5.4%)

from the previous year. This accounted for 59.4% of the vehicles brought into those shops for maintenance. Finally, the average number of vehicles brought into maintenance shops at dealers for other maintenance was 2,974 per shop, an increase of 291 vehicles (6.9%) from the previous year, and accounting for 60.8% of the total.

(3) Trends in Shaken Vehicle Inspection and Regular Inspection Maintenance Fees According to Type of Business

Two-year vehicle inspections account for over three-quarters of the shaken vehicle inspection sales volume. Comparing the unit prices of the 2-year vehicle inspection fees at the different types of businesses, the unit price at the full-time vehicle maintenance businesses was 46,324 yen, a decrease of 2,563 yen (5.2%) over the unit price of the previous year. Similarly, the unit price at maintenance shops run as an additional business was 50,680 yen, a decrease of 1,118 yen (2.2%) compared to the previous year. However, for maintenance shops at dealers, the unit price was 74,001 yen, an increase of 776 yen (1.1%) compared to the previous year.

The price difference between the 2-year shaken vehicle inspection fees at full-time vehicle maintenance businesses and maintenance shops at dealers was 27,677 yen, and this was an increase of 3,339 yen compared to the survey results from the previous year.

A comparison of the average unit price of 1-year inspections, which accounts for about three-quarters of regular inspection and maintenance sales, by business type shows that the 1-year inspection fees at the full-time vehicle maintenance businesses were 18,607 yen, an increase of 222 yen (1.2%) from the previous year.

The 1-year inspection fee at the maintenance shops run as an additional business was 16,684 yen, a decrease of 1,095 yen or 6.2% from the previous year. The 1-year inspection fee at the dealer shops was 18,906 yen, an increase of 185 yen (1.0%) from the previous year.

3 Inspection and Maintenance System Trends

3.1. Vehicle Inspections

In 2019 the total number of shaken renewal inspections (sum of data from MLIT, the National Agency for Automobile and Land Transport Technology (NALTEC), and the Light Motor Vehicle Inspection Organization (LMVIO)) was 32,733,693 cases, a decrease of 27,888 cases (0.1%) compared to the previous year. This was the first

decrease in renewal inspections in five years.

The total number of registered vehicles and mini-vehicles specified to receive maintenance was 24,021,357 an increase of 57,756 vehicles (0.2%) compared to the previous year. The specified maintenance rate rose by 0.2% from the previous year to 73.4%.

Closer analysis of the data for registered vehicles collected by MLIT shows that the number of registered vehicles subjected to a shaken renewal inspection was 20,795,904, a decrease of 247,247 vehicles (1.2%) compared to the previous year. The number of vehicles subject to specified maintenance was 15,852,472, a decrease of 144,454 vehicles (0.9%). The specified maintenance rate rose by 0.2% from the previous year to 76.2%.

In 2019, the number of inspections conducted by NALTEC at inspection centers throughout Japan to assess compliance with the Japanese Safety Regulations for Road Vehicles (total number of new inspections, shaken renewal inspections, structural change inspections, and re-inspections) was 6,796,464. This was a decrease of 147,810 inspections (2.1%) compared to the previous year.

The number of on-street inspections was 135,400, an increase of 630 (0.5%) compared to the previous year.

The breakdown of the number of the different types of inspections indicates that there were 1,055,178 new inspections (including preliminary inspections), a decrease of 5,966 (0.6%) compared to the previous year.

The number of shaken renewal inspections was 4,938,035, a decrease of 100,550 (2.0%) compared to the previous year.

The number of structural change inspections was 63,745, a decrease of 113 (0.2%) compared to the previous year. There were 739,506 re-inspections, a decrease of 41,181 (5.3%) compared to the previous year.

Examining the data for mini-vehicle inspections reveals that there were 11,937,789 shaken renewal inspections, an increase of 219,359 (1.8%) compared to the previous year. The number of shaken renewal inspections for mini-vehicles first exceeded 10 million in 2010 and since 2015, it has now exceeded 11 million for 5 years in a row.

The number of mini-vehicles subject to specified maintenance was 8,168,885 and the specified maintenance rate was 68.4%, an increase of 0.4% from the previous year. Since fiscal 2019, online renewal inspection submissions (one stop service (OSS)) were introduced for mini-vehicle specified maintenance, and the use of that service in the same year accounted for 1,256,502 (15.4%) of all specified

maintenance.

The number of vehicles brought into LMVIO for a shaken renewal inspection was 3,768,904. This total consisted of 2,682,443 vehicles brought in by maintenance personnel, and 1,086,461 vehicles brought in by the owner.

3. 2. OBD Inspections

With respect to OBD inspections, preparations for the necessary environment for the introduction of the amended Road Transport Vehicle noted in the introduction were made.

In renewal inspections, a scanning tool is connected to the inspected vehicle. The vehicle does not pass the shaken inspection if a failure code (specific DTC) that does not comply with the safety regulations is found in the OBD records. Consequently, the technical information required to read the failure codes submitted by the manufacturer (ECU), as well as the technical information on the failure codes marking non-compliance with the safety regulations, are necessary.

The amended law entrusts the management of that technical information to the National Agency for Automobile and Land Transport Technology, enabling all workshops and designated workshops throughout Japan registered with that agency or the Light Motor Vehicle Inspection Organization to make use of the information required to verify compliance with the criteria during renewal inspections.

4 Machine Tools

Every year at the end of July, the Japan Automotive Service Equipment Association (JASEA) collects and then announces the automotive machine tool sales figures from its member companies from the previous fiscal year. The latest announced machine tool sales figures are those from fiscal 2018 (from April 2018 to March 2019). The machine tools handled by each member company are broadly classified into 19 item categories and

then added up.

In 2018, total automotive machine tool sales amounted to 108 billion 935.13 million yen, an increase of 2 billion 211.03 million yen (2.1%) compared to the previous fiscal year. This is the fourth consecutive year that machine tool sales have increased, and also the sixth year in a row that they have exceeded 100 billion yen.

In the 2018 survey, sales surpassed those of the previous year in 10 of the 19 categories (integrated vehicle diagnostic equipment, inspection equipment, lifts, jacks, and presses, servicing equipment for air compressors, batteries and coolers, servicing equipment for engines, equipment for diesel engines, oil chargers, miscellaneous systems, and environmental maintenance equipment). Of those, lifts, jacks and presses (19.4 billion yen), equipment for batteries and coolers (2.6 billion yen), and servicing equipment for engines (1.4 billion yen) exhibited the highest results in fourteen years.

In terms of proportion of total sales, the largest contributors were lifts, jacks, and presses (19.4 billion yen, an 7.1% increase over the previous year), inspection equipment (10.8 billion yen, a 8.6% increase), vehicle washing equipment (9.0 billion yen, a decrease of 0.2%), manual tools (7.8 billion yen, a 0.5% decrease), integrated vehicle diagnostic equipment (7.2 billion yen, a 26.1% increase), general equipment for use in the garage (6.6 billion yen, a 7.7% decrease), and servicing equipment for brakes and wheels (5.8 billion yen, a 2.6% decrease).

Sales of scanning tools, which are essential to diagnostics, inspections, and servicing were 13,781 units (a 20.5% decrease from the previous year) amounting to a total of 2 billion 681.6 million yen and an average unit price of 150,073 yen (compared to 129,311 yen the year before).

Sales of the diagnostic software installed in scanning tools was 16,870 units (a 34.9% decrease from the previous year), amounting to a total of 353.5 million yen and an average unit price of 18,100 yen (compared to 19,554 yen the year before).