Vespa GTS125, GTS250, GTS300, GTV250, GTV300, LX125, LX150, LXV125, LXV150, S125, S150, Primavera, Sprint

Haynes Service and Repair Manual for Vespa GTS, GTV, GT, LX, LXV, S, Primavera & Sprint Scooters (2005-2018)

Comprehensive Maintenance and Repair Instructions

Introduction

This manual provides detailed service and repair information for various Vespa scooter models manufactured between 2005 and 2018. It covers essential procedures from routine maintenance to complex system overhauls, designed to assist owners and technicians in maintaining their vehicles.
Key areas addressed include vehicle identification, safety protocols, pre-ride inspection checks, and comprehensive specifications for the covered models.

Image 1: Front cover of the Haynes Service and Repair Manual. This image displays the manual's title, the Haynes logo, and illustrations of various Vespa scooter models, including the GTS, GTV, GT, LX, LXV, S, Primavera, and Sprint series, covering model years 2005 to 2018.

Models Covered

This manual specifically covers the following Vespa models and engine sizes:

- GTS125/150 (124/151cc) from 2009-2018

- GTS250 (244cc) from 2005-2009
- GTS300 (278cc) from 2008-2018
- GTV/GT250 (244cc) from 2007-2010
- GTV300 (278cc) from 2010
- LX125/150 (124/151cc) from 2009-2014
- LXV125/150 (124cc) from 2010-2014
- S125/150 (124/151cc) from 2009-2013
- Primavera (124cc) from 2014-2018
- Sprint (124cc) from 2014-2018

This includes Super, SuperSport, Touring, i-get, and Special Edition/Anniversary models, as well as mechanical features of the 946.

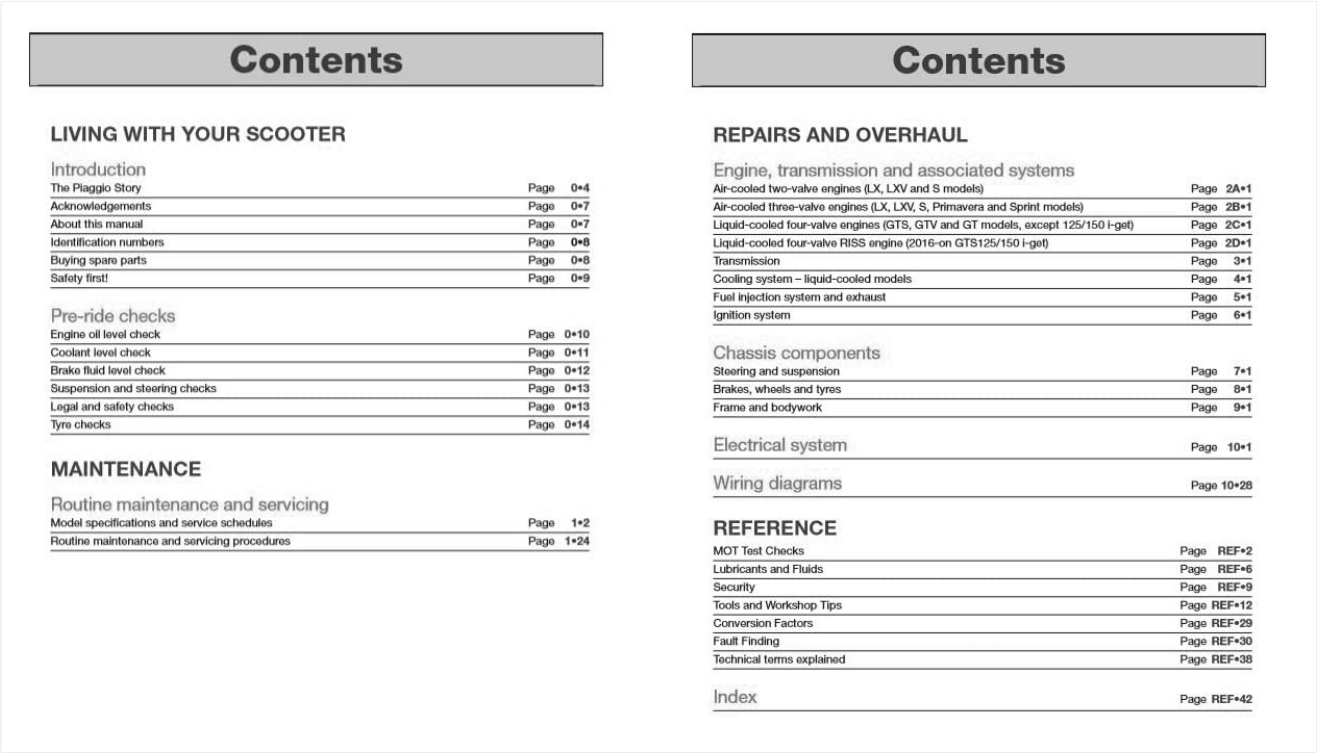
Image 2: Back cover of the Haynes manual. This image provides a summary of the Vespa models covered by the manual, along with an overview of the types of content included, such as step-by-step instructions, reference sections, and wiring diagrams. The ISBN-13 is 978-1785214189 and UPC is 0699414007110.

Routine Maintenance and Servicing

Chapter 1 details all routine maintenance and servicing procedures necessary to keep your Vespa in optimal condition. This includes regular checks and scheduled service tasks to ensure longevity and reliable performance.

Pre-Ride Checks

- Engine oil level check
- Coolant level check
- Brake fluid level check
- Suspension and steering checks
- Legal and safety checks
- Tyre checks



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Chassis components

Electrical system

Wiring diagrams

REFERENCE

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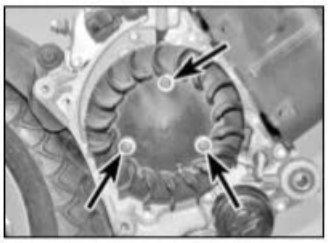
Image 3: Contents page from the manual. This image displays a detailed list of chapters and sections, including "Living With Your Scooter," "Maintenance," and "Repairs and Overhaul," providing a clear roadmap to the manual's content.

Engine Systems

This section provides in-depth information on various engine types found in the covered Vespa models.

- **Chapter 2A:** Air-cooled two-valve engines (LX, LXV and S models)
- **Chapter 2B:** Air-cooled three-valve engines (LX, LXV and S models)
- **Chapter 2C:** Liquid-cooled four-valve engines (GTS, GTV and GT models)



16.4 Undo the screws (arrowed) and remove the fan

4 Undo the three screws securing the cooling fan to the alternator rotor and remove the fan **(see illustration)**.
5 Installation is the reverse of removal.

17 Alternator rotor and stator

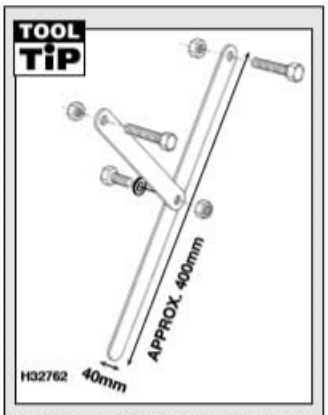
Note: *This procedure can be carried out with the engine in the frame. If the engine has been removed, ignore the steps which do not apply.*

Check

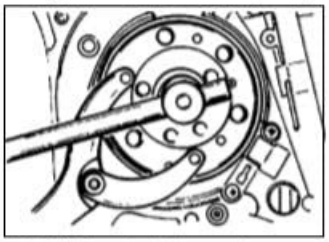
1 Refer to Chapter 10.

Removal

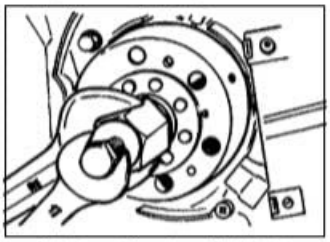
2 Remove the cooling fan (see Section 16).
3 To remove the rotor nut it is necessary to stop the rotor from turning. Vespa produces a service tool (Part No. 020656Y) which locates in the holes in the rotor **(see illustration)**. Similar tools can be purchased from aftermarket suppliers, such as a motorcycle clutch holding tool which has pegs on the reverse side – make sure you measure the diameter of the holes so you can check the pegs on the tool are not too big. A strap wrench can be used around the rotor periphery of the rotor, but be careful not to damage the ignition pulse generator coil – it is best to undo the coil bolts and displace the coil first. Alternatively you could make a tool (see ***Tool Tip***). With the rotor held securely, unscrew the nut.



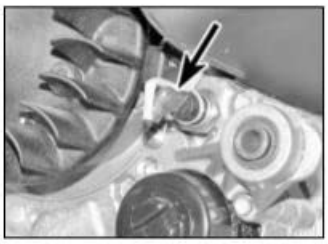
A rotor holding tool can easily be made using two strips of steel bolted together in the middle, with a bolt through each end which locates into the holes in the rotor. Do not allow the bolts to extend too far through the rotor holes otherwise the coils could be damaged.



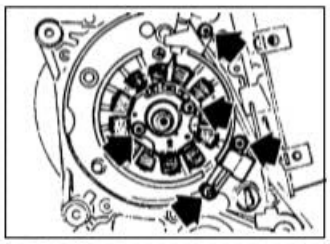
17.3 With the rotor held securely, unscrew the nut



17.4 Screw the rotor puller into the hub then turn the bolt until the rotor is displaced



17.5 Oil pressure switch wiring connector (arrowed)



17.6 Undo the screws (arrowed) and remove the stator and pulse coil assembly

4 To pull the rotor off the crankshaft it is necessary to use the Vespa service tool (Part No. 008564Y), a commercially available equivalent, or a two-legged puller **(see illustration)**. When fitting the tool make sure the centre bolt is backed-out sufficiently to allow the body of the tool to be screwed all the way into the threads in the rotor. With the tool in place, hold the body of the tool using a spanner on its flats while tightening the centre bolt (turn it clockwise) to draw the rotor off the end of the shaft. If using a two-legged puller, assemble the puller legs through the holes in the rotor and tighten the centre bolt down onto the crankshaft end until the rotor is drawn off. If it is loose, remove the Woodruff key from the shaft, noting how it fits.
5 Disconnect the alternator, pulse generator coil and oil pressure switch wiring connectors **(see illustration)**. Free the wiring from any clips and ties and feed it back to the rotor, noting its routing.
6 Undo the wiring guide screw, the pulse generator coil screws and the stator screws and remove the two units together **(see illustration)**.

Installation

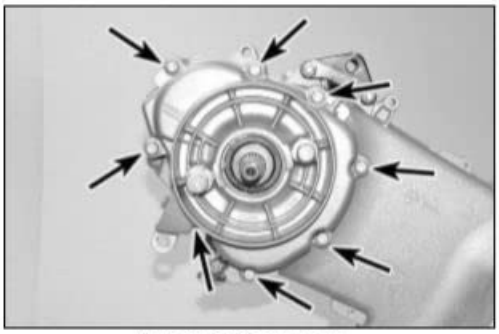
7 Fit the stator and pulse generator coil onto the crankcase – make sure that the wiring for the generator coil and the oil pressure switch is correctly positioned **(see illustration 17.6)**. Fit the stator screws, and the generator coil screws unless you need it displaced to fit a rotor strap for tightening the rotor nut, and tighten them to the specified torque.
8 Connect the oil pressure switch and alternator/pulse generator coil wiring connectors, making sure the wiring is correctly routed and secured by any ties and guides.
9 Clean the tapered end of the crankshaft and the corresponding mating surface on the inside of the rotor with a suitable solvent. Make sure that no metal objects have attached themselves to the magnets on the inside of the rotor. If removed, fit the Woodruff key into its slot in the shaft. Fit the rotor onto the shaft, aligning the slot in the rotor with the key.
10 Fit the rotor nut and tighten it to the torque setting specified at the beginning of the Chapter, using the method employed on removal to prevent the rotor from turning **(see illustration 17.3)**. Fit the pulse generator coil screws now if not already done.
11 Turn the rotor so that the raised trigger aligns with the pulse generator coil, then measure the air gap between the rotor and the

Image 4: An example page from the manual illustrating the removal of the alternator and stator. This page includes detailed step-by-step instructions, diagrams, and tool tips for performing the procedure.

Transmission

Chapter 3 covers the transmission system, including inspection, maintenance, and repair procedures for optimal power delivery.

6.10 Disconnect the breather hose



6.11a Undo the cover bolts...

breather hose and disconnect the hose **(see illustration)**

11 Undo the gearbox cover bolts and remove the cover – hold the end of the output shaft so that it comes away with the cover **(see illustrations)**.

12 Lift out the intermediate shaft then draw out the input shaft **(see illustration)**. If necessary, tap the left-hand end of the input shaft with a soft-faced mallet to ease it out of the bearing. Remove the output shaft from the cover.

13 Remove the gasket and discard it – a new one must be fitted **(see illustration 6.33)**. Note the location of the dowels and remove them for safekeeping if they are loose.

Inspection

14 Remove all traces of old gasket from the gearbox and cover mating surfaces, taking care not to nick or gouge the soft aluminium if a scraper is used. Wash all of the components in clean solvent and dry them off.

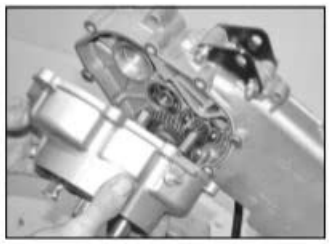
15 Check the pinion teeth for cracking, chipping, pitting and other obvious wear or damage. Check the splines on the shafts for wear and damage. Replace worn or damaged components with new ones.

16 Check for signs of scoring or bluing on the pinions and shaft. This could be caused by overheating due to inadequate lubrication. On 2016-on GTS125/150, Primavera and Sprint models, measure the shaft bearing journals and compare the results with the Specifications.

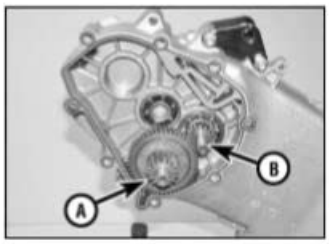
17 Note which way round the input and output shaft oil seals are fitted, then lever them out and discard them – new ones must be used **(see illustrations)**.

18 Check that all the bearings turn smoothly and freely without excessive play between the inner and outer races. The bearings should be a tight fit in the casing; if a bearing is loose, and the casing is not damaged, use a suitable bearing locking compound to hold it in place.

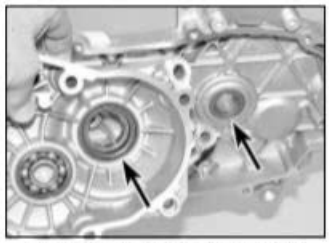
19 To remove a bearing from a housing open on both sides, first remove the circlip where fitted **(see illustration)**. Note the position of



6.11b ... and remove the cover

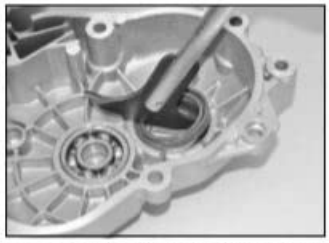


6.12 Gearbox intermediate shaft (A) and input shaft (B)

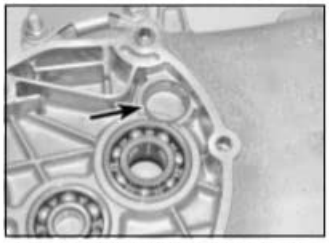


6.17a New oil seals (arrowed) must be fitted...

6.17b ... lever out the old seal...



6.17c ... using a seal hook or screwdriver...



6.19 This bearing is secured by a circlip (arrowed)

Image 5: A page from the manual focusing on transmission components. It shows diagrams and instructions for disconnecting the breather hose, removing covers, inspecting gears, and replacing oil seals, providing visual guidance for complex tasks.

Cooling System

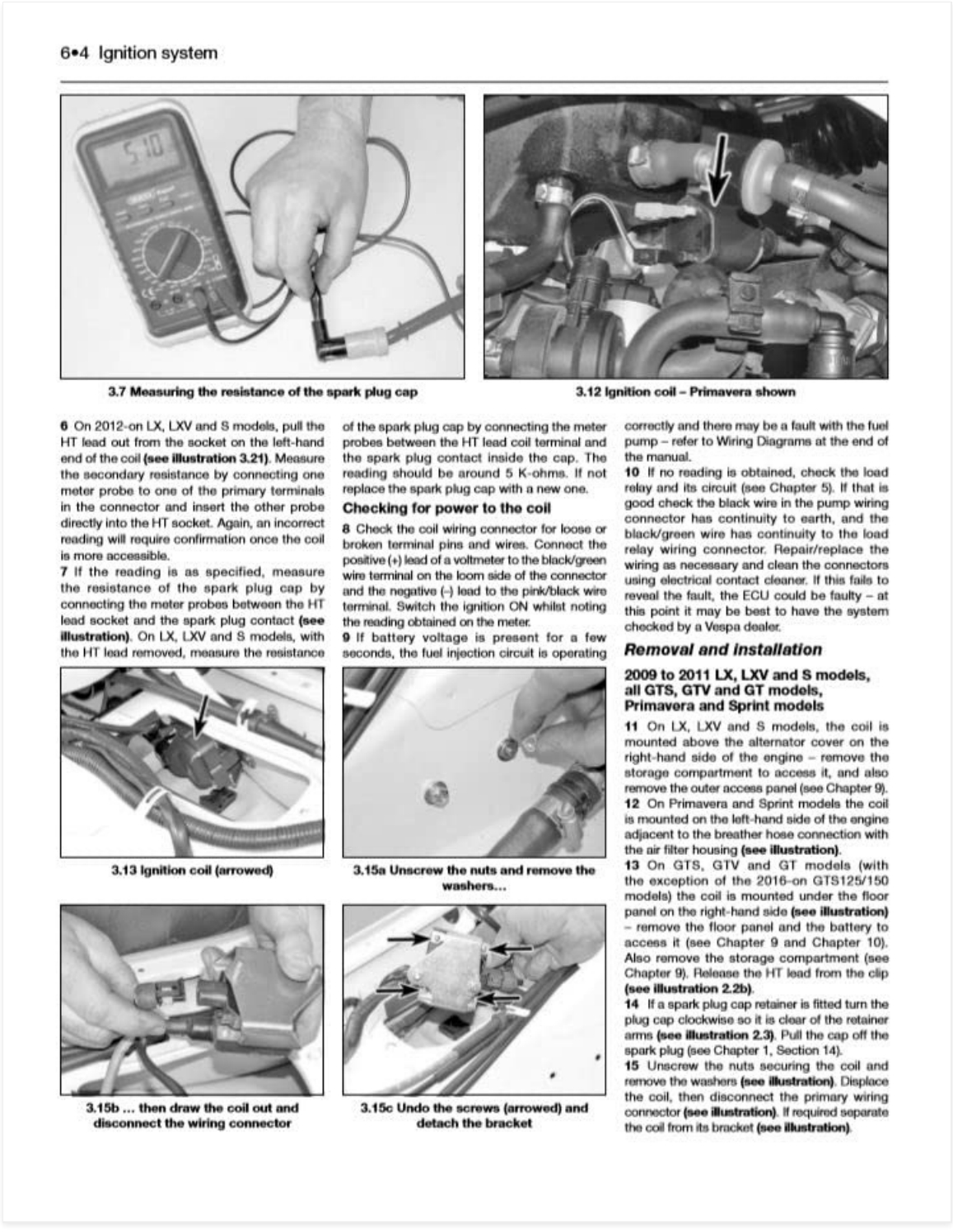
Chapter 4 provides guidance on the cooling system, essential for maintaining engine temperature and preventing overheating.

Fuel Injection System and Exhaust

Chapter 5 details the fuel injection system and exhaust components, covering maintenance, troubleshooting, and repair procedures.

Ignition System

Chapter 6 focuses on the ignition system, including spark plug maintenance, coil checks, and wiring information.



6•4 Ignition system

3.7 Measuring the resistance of the spark plug cap

3.12 Ignition coil – Primavera shown

6 On 2012-on LX, LXV and S models, pull the HT lead out from the socket on the left-hand end of the coil **(see illustration 3.21)**. Measure the secondary resistance by connecting one meter probe to one of the primary terminals in the connector and insert the other probe directly into the HT socket. Again, an incorrect reading will require confirmation once the coil is more accessible.

7 If the reading is as specified, measure the resistance of the spark plug cap by connecting the meter probes between the HT lead socket and the spark plug contact **(see illustration)**. On LX, LXV and S models, with the HT lead removed, measure the resistance of the spark plug cap by connecting the meter probes between the HT lead coil terminal and the spark plug contact inside the cap. The reading should be around 5 K-ohms. If not replace the spark plug cap with a new one.

Checking for power to the coil

8 Check the coil wiring connector for loose or broken terminal pins and wires. Connect the positive (+) lead of a voltmeter to the black/green wire terminal on the loom side of the connector and the negative (–) lead to the pink/black wire terminal. Switch the ignition ON whilst noting the reading obtained on the meter.

9 If battery voltage is present for a few seconds, the fuel injection circuit is operating correctly and there may be a fault with the fuel pump – refer to Wiring Diagrams at the end of the manual.

10 If no reading is obtained, check the load relay and its circuit (see Chapter 5). If that is good check the black wire in the pump wiring connector has continuity to earth, and the black/green wire has continuity to the load relay wiring connector. Repair/replace the wiring as necessary and clean the connectors using electrical contact cleaner. If this fails to reveal the fault, the ECU could be faulty – at this point it may be best to have the system checked by a Vespa dealer.

Removal and installation

2009 to 2011 LX, LXV and S models, all GTS, GTV and GT models, Primavera and Sprint models

11 On LX, LXV and S models, the coil is mounted above the alternator cover on the right-hand side of the engine – remove the storage compartment to access it, and also remove the outer access panel (see Chapter 9).

12 On Primavera and Sprint models the coil is mounted on the left-hand side of the engine adjacent to the breather hose connection with the air filter housing **(see illustration)**.

13 On GTS, GTV and GT models (with the exception of the 2016-on GTS125/150 models) the coil is mounted under the floor panel on the right-hand side **(see illustration)** – remove the floor panel and the battery to access it (see Chapter 9 and Chapter 10). Also remove the storage compartment (see Chapter 9). Release the HT lead from the clip **(see illustration 2.2b)**.

14 If a spark plug cap retainer is fitted turn the plug cap clockwise so it is clear of the retainer arms **(see illustration 2.3)**. Pull the cap off the spark plug (see Chapter 1, Section 14).

15 Unscrew the nuts securing the coil and remove the washers **(see illustration)**. Displace the coil, then disconnect the primary wiring connector **(see illustration)**. If required separate the coil from its bracket **(see illustration)**.

3.13 Ignition coil (arrowed)

3.15a Unscrew the nuts and remove the washers...

3.15b ... then draw the coil out and disconnect the wiring connector

3.15c Undo the screws (arrowed) and detach the bracket

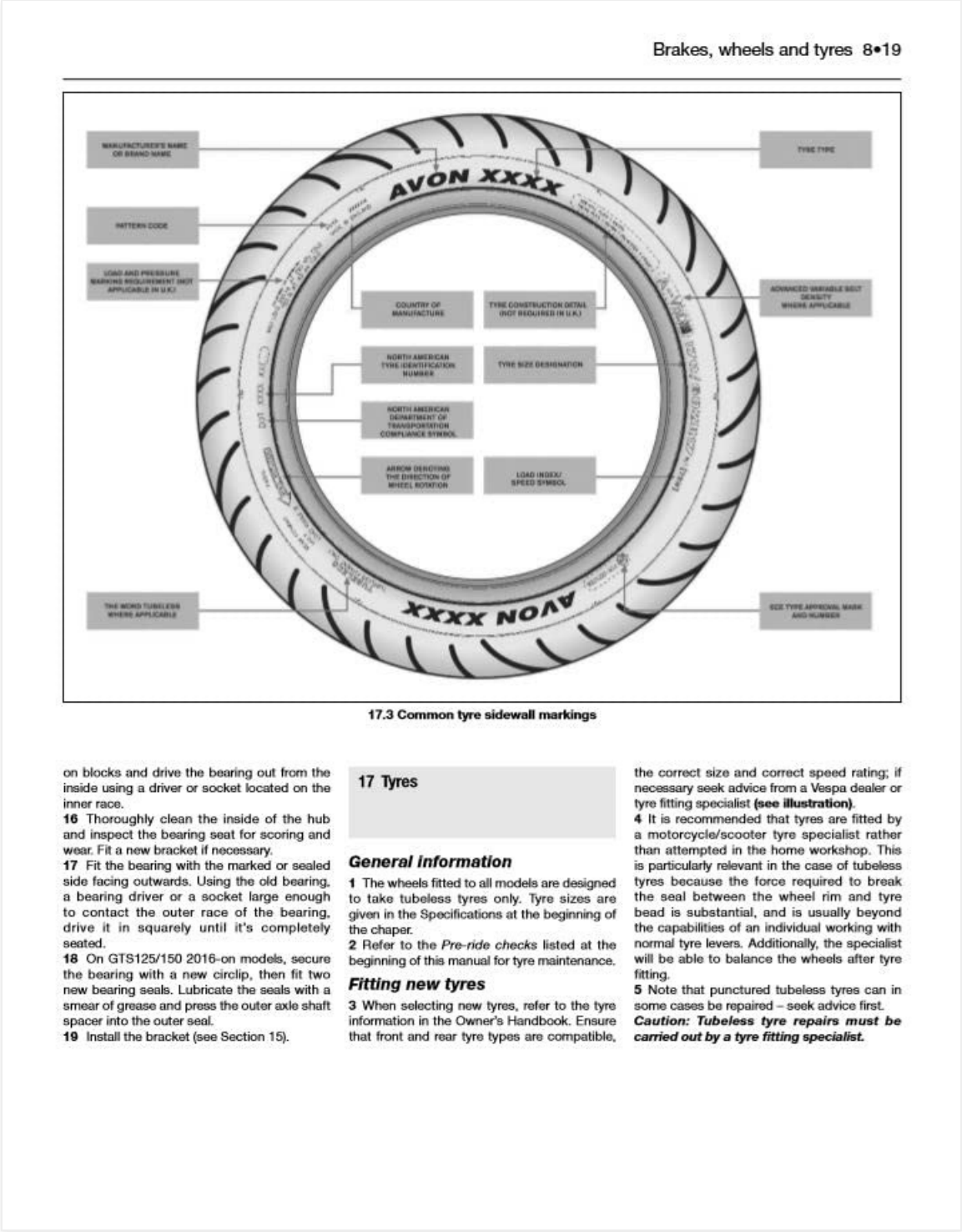
Image 6: A page from the manual explaining how to measure the resistance of the spark plug cap and check the ignition coil. It includes diagrams of the ignition coil and instructions for removal and installation, along with notes on specific models.

Steering and Suspension

Chapter 7 addresses the steering and suspension components, crucial for vehicle handling and ride comfort.

Brakes, Wheels and Tyres

Chapter 8 provides detailed information on the braking system, wheels, and tyres, including inspection, replacement, and safety guidelines.



Brakes, wheels and tyres 8•19

17.3 Common tyre sidewall markings

on blocks and drive the bearing out from the inside using a driver or socket located on the inner race.

16 Thoroughly clean the inside of the hub and inspect the bearing seat for scoring and wear. Fit a new bracket if necessary.

17 Fit the bearing with the marked or sealed side facing outwards. Using the old bearing, a bearing driver or a socket large enough to contact the outer race of the bearing, drive it in squarely until it's completely seated.

18 On GTS125/150 2016-on models, secure the bearing with a new circlip, then fit two new bearing seals. Lubricate the seals with a smear of grease and press the outer axle shaft spacer into the outer seal.

19 Install the bracket (see Section 15).

17 Tyres

General information

1 The wheels fitted to all models are designed to take tubeless tyres only. Tyre sizes are given in the Specifications at the beginning of the chaper.

2 Refer to the *Pre-ride checks* listed at the beginning of this manual for tyre maintenance.

Fitting new tyres

3 When selecting new tyres, refer to the tyre information in the Owner's Handbook. Ensure that front and rear tyre types are compatible, the correct size and correct speed rating; if necessary seek advice from a Vespa dealer or tyre fitting specialist **(see illustration)**.

4 It is recommended that tyres are fitted by a motorcycle/scooter tyre specialist rather than attempted in the home workshop. This is particularly relevant in the case of tubeless tyres because the force required to break the seal between the wheel rim and tyre bead is substantial, and is usually beyond the capabilities of an individual working with normal tyre levers. Additionally, the specialist will be able to balance the wheels after tyre fitting.

5 Note that punctured tubeless tyres can in some cases be repaired – seek advice first. ***Caution: Tubeless tyre repairs must be carried out by a tyre fitting specialist.***

Image 7: A page from the manual detailing common tyre sidewall markings and providing general information about wheels and tyres. It includes guidance on fitting new tyres and important safety considerations.

Frame and Bodywork

Chapter 9 covers the frame and bodywork, including removal, installation, and repair procedures for various components.

Electrical System and Wiring Diagrams

Chapter 10 provides comprehensive information on the electrical system, including wiring diagrams to assist in

troubleshooting and repairs.

Specifications

This manual includes detailed specifications for the covered Vespa models, providing critical data for maintenance and repair tasks.

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Support and Additional Resources

For further assistance or specific technical inquiries not fully covered within this manual, it is recommended to consult an authorized Vespa service center or refer to official Vespa documentation for your specific model year. This manual serves as a comprehensive guide for hands-on maintenance and repair, empowering owners to perform various tasks with confidence.