



Owner's Manual

**Apache**  
**RTR 160**  
RACING DNA UNLEASHED



ALWAYS USE TVS-M GENUINE PARTS

**CONTACT(S) FOR SUPPORT**



**For 'Service Appointments & Assistance' and to avail 'Pick-up & Drop' facility please contact**

Dealer code, Name .....

Address .....

.....

.....

Contact person name and mobile no. (Sales)

.....

Contact person name and mobile no. (Service)

.....

Email id .....

**Incase you need any Clarification please contact above Dealer**

**Or**

**TVS Motor Company's Area Offices (flip over for addresses)**

**Or**

**Toll Free Number : 1800-258-7111**

**Email : [customercare@tvsmotor.com](mailto:customercare@tvsmotor.com)**

**Disclaimer :** TVS Motor Company or any of its officials / Authorized Main dealer / Authorized Dealer do not ask customers for bank / card / wallet details / authentication. In case you face any such claim, please report to the relevant local authorities immediately.



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## FOREWORD



Dear Customer

Congratulations on the taking home the new Apache RTR 160. Rest assured you can look forward to exciting times ahead. And you will know what we are hinting at every time you gun that throttle that is meant to live up to its name - **Racing Throttle Response 160**.

The priority in every step of the RTR 160 development has been **Performance** first. Every system, every detail and every component has been studied and pared down to its essence and performance increased to the maximum. If it didn't make the RTR 160 lighter, faster or deliver quicker lap times on our Racetrack, it wasn't considered.

The result: the RTR 160 is the fastest motorcycle with the highest power-to-weight ratio of any sport bike we have ever made. It is the lightest, fastest stopping, quickest lapping TVS bike in history. For the first time **TVS Racing's** Dirt and Road racing technology have been combined to create a racing bike that is **Street Legal**, but just barely. The results are stunning.

### DESIGNED BY THE RACE TRACK

The look and stance of the RTR 160 were designed by the combination of race track technology, track-derived components at our Apache Racing Group. The bike's striking aerodynamic shape naturally embraces its Racing Ergonomics. The all new Tank Scoops and new Data logging facilities which display Top speed and 0 - 60 lap time are the seen for the first time.

Also this Owner's Manual has all details to ensure your bike is in top notch race ready condition.

So get astride and burn rubber on every road you hit. Every road will now seem a race track.

Enjoy Riding!

**TVS MOTOR COMPANY LIMITED**



## NOTICE



Take time to familiarize yourself with your TVS Apache RTR 160 and its performance characteristics.

This Owner's Manual contains a host of useful information. Please take the time to read this manual before you ride your new TVS Apache RTR 160. Get familiarised with the operation of your motorcycle for maximum safety and pleasure. The better you know your vehicle, the more pleasure you will experience riding your new vehicle. Ensure that anyone else riding your TVS Apache RTR 160 does the same.

All information, illustrations, photographs and specifications contained in this owner's manual are based on the latest product information available at the time of this publication. TVS Motor Company Limited may, however, incorporate modifications or improvements on its vehicles at any time without notice, and therefore, in such events it is possible that the relevant part of the owner's manual does not apply to your vehicle.

Prior permission of TVS Motor Company Limited is required for quoting, copying or reproducing any part of this owner's manual.

### Note

***Accessories shown in the picture may not be a part of standard equipment. Pictures shown in the manual are of TVS Apache RTR 160 with rear disc brake until otherwise specified.***

***Your motorcycle is provided with always glowing head lamp. The head lamp glows automatically once the engine is started.***

Revision 0, Feb 2019



## SAFETY INFORMATION



Operating this vehicle safely is an important responsibility of the rider. To help you make decisions on safety, we have provided necessary operating procedure and other information in the owner's manual. This information alerts you on potential hazards that could hurt you or others. Since it is not possible to warn you about all the hazards associated with operating or maintaining the vehicle, you must use your own judgement.

You will find important safety information in following form in the owner's manual as well as the service handbook. These words carry the following connotations:



### Warning

*Disregarding this message might result in **injury to the rider or deadly accidents.***



### Caution

*This message indicates special procedures or precautions to be followed to **avoid damage to the vehicle.***



### Note

*This message provides further clarification for **clear understanding of any particular information.***



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## RUNNING-IN INFORMATION



The first 1000 km is a crucial part of your motorcycle. Proper running-in operation during this period helps in ensuring a **maximum life** and **smooth performance** of your motorcycle.

The reliability and performance of your motorcycle depends on the special care and restraint exercised during the running-in period. It is especially important that you avoid operating the engine in high speed (RPM), which could expose the engine parts to excessive stress. Recommended speed during the running-in is:

**Maximum 50 km/h speed upto 750 km** (vary the engine speed for better mating of parts).

The first free service at 500 ~ 750 km is most important. During running-in period all the engine components and other parts will have set in. All adjustments to be restored, all fasteners to be tightened. Engine cum transmission oil to be replaced. Timely performance of the first free service will ensure optimum service life and performance from the engine.



### Caution

*Replacing the engine cum transmission oil during first service is most important for better life of engine. Always use TVS TRU4 FULLY SYNTHETIC oil (SAE 10W30 API-SL, JASO MA2) for better performance and life.*

*Since your motorcycle is fitted with Evaporative Emission Control System, **the motorcycle should not be laid on the floor during water wash.** Else it may lead to difficulty in starting and improper running of the motorcycle.*

### Anti-Lock Brake System (ABS)

Your motorcycle is fitted with a **Single Channel Anti-lock Braking System (ABS)** in the front brake system which is designed to prevent skidding and help riders to maintain steering control during emergency-stopping situation in dry or wet roads, loose gravels etc.

#### How does ABS work?

When a rider applies the front brake continuously, as he detects a dangerous obstacle in dry or wet roads, loose gravels etc. transmits an excessive brake force to the wheel. This excessive force may cause the wheels to stop spinning and leads to lose of road grip. With no firm contact between the tire's contact patch and the road surface, the bike becomes unstable and a crash is imminent.

The slipping wheels on a riding surface results in losing control of whole motorcycle which usually occurs in fractions of a second. Restoring traction while keeping the bike balanced is only a result of luck, or extreme training, as is the case of professional stunt riders who drift. Preventing the wheels from slipping due to excessive braking force compensates losing control and help the rider to maneuver the vehicle and to avoid accidents.

So what the ABS does is actually limiting the braking force exerted by the rider by either squeezing the lever and keep the wheel spinning. Once the imminence of the locking (and therefore skidding) is avoided, the system re-applies the maximum braking force until the next skid is anticipated. By limiting the max force of the braking maneuver, the ABS systems practically allow the riders to use the greatest stopping force possible without locking the front wheel.

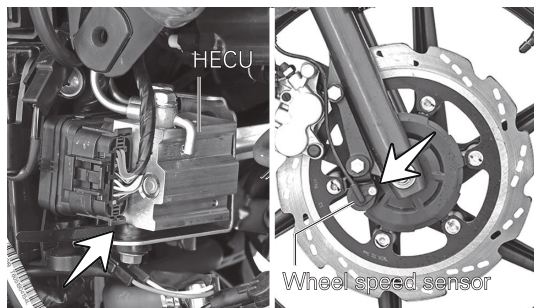
#### How does the ABS understands the wheel locking?

The ABS uses continuous wheel speed monitoring system; wheel speed sensors and toner rings and a Hydraulic Electronic Control Unit (HECU).

During normal operation the ABS works similar to a normal brake. The speed sensor fitted on the front wheel measures the rotational speed of the front wheel, when the wheel speed reduces rapidly i.e. wheel tends to lock, the HECU modulates the pressure in the brake circuit and thereby prevents the wheel from locking.







### How the irregular road surface affects the braking?

Humps and irregular surfaces of the road can cause the wheels to lose contact temporarily with the road surface; if this happens the braking force that can be transmitted to road surface is zero.

If the brakes are applied under these condition, the ABS has to reduce the braking force to ensure and maintain the directional stability when the wheels regains its contact with the road surface. At this instant the ABS must reduce the traction, so that the wheels will continue to rotate under all imaginable circumstances, because this is the precondition for ensuring directional stability.

As soon as the actual circumstances arises, the system reacts instantly and adjusts braking force accordingly to achieve optimum braking.

### Why does brake lever pulsate during brake application?

Vehicles fitted with ABS uses the conventional brake system during normal operation. **But during hard stop the brake lever feels different, i.e., a rapid pulsation in the brake lever; This is absolutely normal.**

### Warning

*The ABS can apply and release the pressure in the brake circuit much faster than that rider can do with brake lever to avoid wheel locking. So there is no need to pump the brake, it requires only continuous application.*

**Only the front brake of your motorcycle is fitted with ABS system and not the rear brake. Applying rear brake alone can cause wheel skidding just like normal braking system. Always apply both front and rear brake for better performance.**

It is not necessary to have this pulsation feel every time the brake is applied. Pulsations are felt only during wheel locking tendency, occurs due to the modulation of pressure in the brake circuit by HECU. Pulsation means that the vehicle is in limit. This pulsation feel also depends on the road condition.

### **ABS warning lamp**

The TVS Apache RTR 160 does an automatic self check every time when the ignition switch is turned 'ON'. The ABS warning lamp provided at the speedometer console blinks and informs you that the ABS is under check.



This ABS warning lamp goes 'OFF' once the bike reaches 7 km/h speed and above and the ABS warning lamp blinks whenever the bike speed is less than 7 km/h speed indicating that the ABS is working fine.

If the warning lamp glows continuously even after the bike crossing 7 km/h speed or if the ABS lamp is not blinking or glowing at all, then the ABS has an error and your bike should be taken to any of our nearest TVS Motor Company Authorised Main dealer / Authorised Dealer.

### **DO'S AND DON'T'S**

#### **Do's**

- ♦ Check the ABS warning lamp for any warning before driving the vehicle.
- ♦ Apply both front and rear brake for better performance.
- ♦ Apply continuous brake in ABS mode for better performance. Do not pump.
- ♦ Perform the periodic maintenance as per the schedule.
- ♦ ABS should be serviced only at TVS Motor Company Authorised Main dealer / Authorised Dealer.

- ♦ Carefully remove the front wheel during puncture / tyre replacement to prevent toner ring damage / bend.
- ♦ **Keep the wheel in such a way that the toner ring is facing upwards.**
- ♦ Always use recommended brake fluid. Use fresh, clean brake fluid.
- ♦ Use only the recommended make, type and size of tyre (ABS tuned with tyre specified by the TVS Motor Company).

#### **Don't's**

- ♦ Do not use **non-standard tyres.**
- ♦ Do not pump the brakes. Apply the brakes continuously.
- ♦ Do not ignore any warning lamp on speedometer.
- ♦ Do not adjust the wheel speed sensor air gap your self.
- ♦ Do not attempt to correct the toner ring teeth by bending manually or by using any other method.
- ♦ Do not use different toner ring.
- ♦ Do not insert any metallic parts near wheel speed sensor.
- ♦ Do not test the ABS on road!!, but use ABS (it is already tested).

- ♦ **Do not use non-genuine spares like pads, discs, tyres etc.**
- ♦ Do not try to service HECU or open to separate parts.
- ♦ Do not disengage the ABS by removing the ABS coupler.

#### **Note**

*Incase of ABS failure, the braking system will work like a non ABS braking system and provides normal stopping distance.*

*This motorcycle is equipped with ABS (on front wheel) and tubeless tyres. For repair or replacement please contact nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.*

*As a general riding practice it is advisable to apply more front brake and less of rear brake.*

*Use of non-genuine brake pads, tyres, disc etc. leads to poor braking performance and unsafe riding conditions.*

*Never open HECU on your own, it is a very sensitive part of ABS and needs to be handled only by the trained personnel. Contact your nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.*

 **Warning**

*ABS only helps in improving the vehicle control. It is always good to remember not to exceed the physical limits of the vehicle stability. It is rider's responsibility to ride at a suitable speed, while taking care of conditions and road surface. ABS will not compensate for errors in the judgement or improper brake use in the various situation. ABS never eliminates the danger of falling while turning.*

*Hard braking during sharp cornering on slippery surface may lead to vehicle instability. Under such circumstances gradual braking is recommended.*

### SAFE RIDING RECOMMENDATIONS

Any two wheeler riding requires some precautions to be taken to ensure the safety of the rider, pillion rider and other road users. These precautions are:

#### **Familiarise yourself with new TVS Apache RTR 160**

Riding skill and your mechanical knowledge forms the foundation of safe riding practices. We suggest you to practice riding TVS Apache RTR 160 in a low-traffic condition until you are thoroughly familiar with your vehicle and its controls. Remember practice makes you perfect.

#### **Riding apparel**

Loose, fancy clothing can be uncomfortable and unsafe when riding a two-wheeler. Choose good quality two wheeler riding apparel.

#### **Know your limits**

Ride within the boundaries of your own skill at all times. Knowing these limits and staying within them will help you avoid accidents.

#### **Warning**

***Two wheeler safety starts with wearing a good quality helmet.*** One of the most serious injuries that can happen is a head injury. Always wear an ISI approved helmet that should fit your head comfortably and securely. You should also have good quality goggles to protect your eyes and help your vision.

*To prevent or minimize accident, never consume alcohol or drugs before or during the operation of your vehicle. Even minimal consumption of these will affect the rider's ability to control the vehicle.*

## Posture

Proper vehicle riding starts with proper posture.

1. Keep your elbows relaxed and flexible.
2. Sit and adjust yourself on seat so that arms and shoulders are relaxed.
3. Look widely instead of gazing at one point.
4. Keep the knees close to the fuel tank.

## Warning

**One-hand riding is dangerous.** *Keep both hands firmly on the handle bar and both feet securely on the foot rest. Under no circumstances should both the hands be removed from the handle bar, as it is very dangerous.*

**Avoid use of mobile phones while riding as it could lead to fatal accident.**

*Do not downshift the gears in the midst of cornering. Slow down to a safe speed before negotiating a corner. If this is the first time that you are riding a vehicle of this type, we suggest that you practice on a safe, open area to thoroughly familiarise with the operation of the vehicle.*

## Cornering

When cornering, centrifugal force works in a direction perpendicular to the direction in which the vehicle is moving. Centrifugal force increases in proportion with speed and the radius of the corner.

During cornering, reduce speed so as to reduce the effects of centrifugal force. Avoid abrupt application of brake or sudden steering by all means.

## Braking

For safe riding, it is very important to master the braking techniques.

1. Close / release the throttle.
2. Hold the vehicle upright as you apply the brake.
3. Progressive application of brakes is safer.
4. Never declutch while braking at higher speeds.
5. **Apply both the brakes.**
6. Do not pump the brakes.
7. Riding down hills, while cornering and wet roads close throttle and down shift the gear to take advantage of gearbox and engine which acts as an additional brake. This will avoid the loss of control over the vehicle due to over speed.

### Causes for poor braking

1. If the brake shoes / pads or drum / disc are worn out or if there is water or oil on them, sufficient friction does not develop and brakes do not work well.
2. Even when the brake works normally, if the road surface is wet or the tyre surface is worn-out, tyres do not take a firm hold on the surface, increasing the stopping distance.

### Warning

*As the vehicle speed increases, the stopping distance also increases progressively. Be sure that, you have sufficient distance between you and the vehicle or obstruction ahead of you. Avoid directing the water jet directly towards brake drum / disc pads during water wash.*

*Using only the front or rear brake is dangerous and can cause skidding and loss of control. **Apply both the brakes together and with great care on a wet road or other slippery surfaces.***

*Any abrupt braking on slippery or irregular roads can cause loss of rider control.*

3. Approximately 60% braking effect is from front brake. **Non-usage of front brake causes poor braking.**

### ACCESSORY INSTALLATION AND SAFETY TIPS

Use extreme caution while selecting and installing the accessories for your motorcycle.

The addition of **unsuitable accessories can lead to unsafe operating conditions**. Your friendly Dealer will assist you in selecting quality accessories and installing them correctly.

While selecting the accessories, make sure the accessories **should not obstruct lighting, steering, suspension level and ground clearance**. Please ensure that if the tank cover is used, it is not getting en-trapped between fuel tank and fuel tank cap.

**Additional electrical equipments and controls should not exceed the specified electrical system load of the vehicle (capacity of battery and magneto).**

## EMISSION CONTROL

All the TVS vehicles are tested in the factory for optimum fuel efficiency and CO levels. If the vehicle needs any adjustments, please consult nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.

While adequate care is exercised at the factory to ensure that the emissions are within the limits, it is essential for the owner to always maintain the motorcycle in good condition by getting it periodically checked and serviced by TVS Motor Company Authorised Main Dealer / Authorised Dealer so that the emission and fuel consumption levels are maintained as per norms.

### Crankcase emission control system

The engine of new TVS Apache RTR 160 is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and the fuel system.

### Evaporative Emission Control System

The TVS Apache RTR 160 is equipped with an evaporative emission control system which consists of a canister and associated piping. This system prevents the escape of fuel vapors from the fuel tank.

## Warning

*If there is any abnormal jerk, startability issue are felt in the vehicle or noise due to sudden escape of gas during opening of fuel tank cap, immediately report to the TVS Motor Company Authorised Main Dealer / Authorised Dealer.*

## Note

***Your vehicle is tested and certified for emission which meets BS VI emission norms and is valid for initial 12 months from the date of purchase. Get your vehicle certified by the Government authorised emission testing station every year (after initial 12 months of usage).***

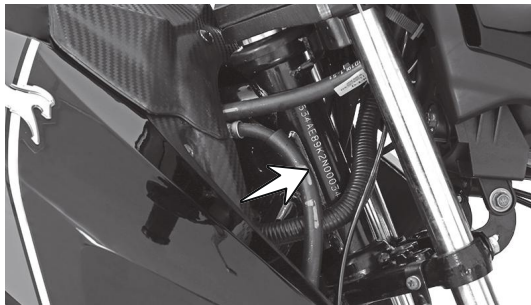


## KNOW YOUR TVS APACHE RTR 160



### VEHICLE IDENTIFICATION NUMBER

The frame and engine serial numbers are the only means of identifying your vehicle from others of the same model and type. They are also required to assist your Dealer for ordering parts or referring to special information.



Frame serial number is engraved on the right side of the steering head tube as shown in the above figure.

Frame number

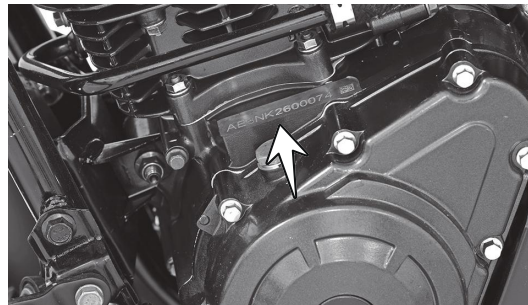
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Engine number

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Control key number

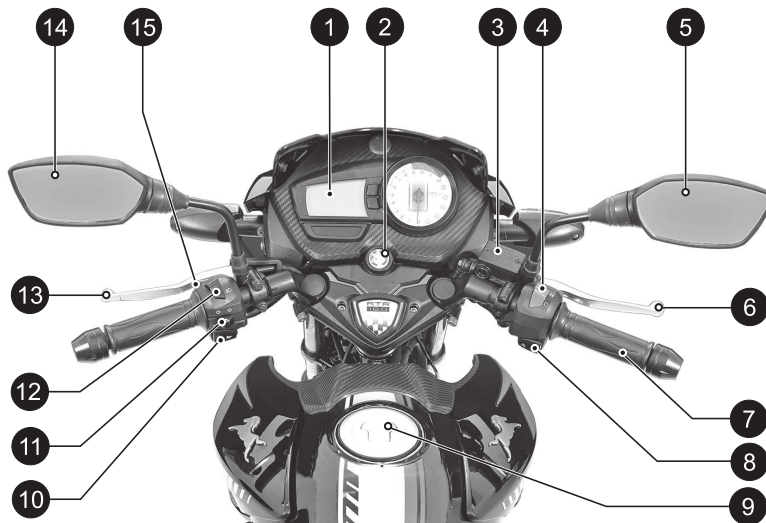
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Engine serial number is engraved on the left side crankcase assembly near cylinder block as shown in the above figure.

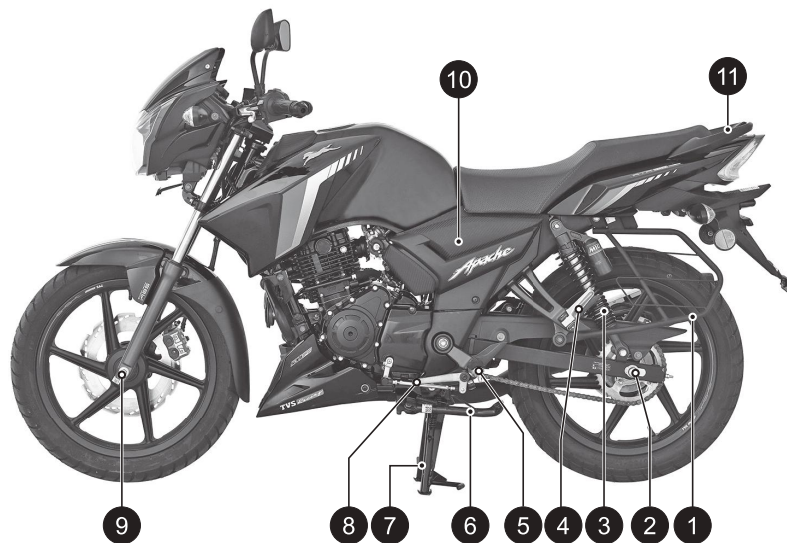
*Please fill the above boxes now for future reference*

## LOCATION OF PARTS - HANDLE BAR



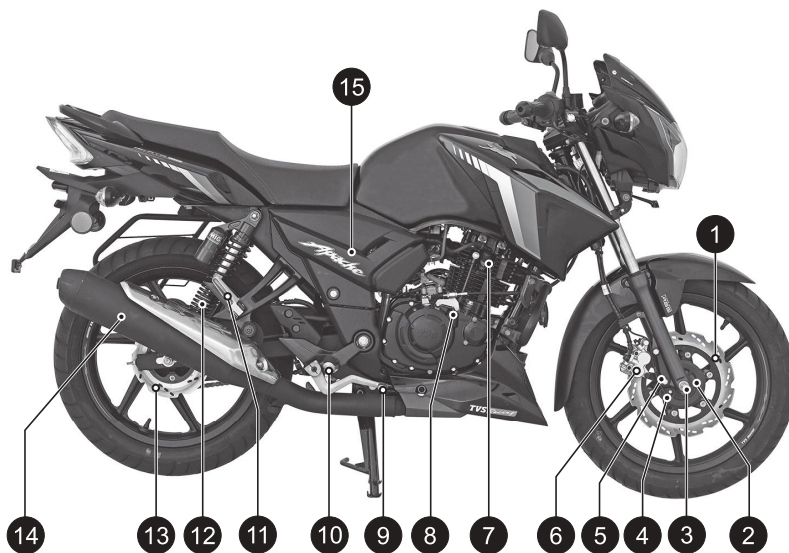
1. Instrument cluster
2. Ignition cum steering lock
3. Master cylinder (front)
4. Engine cut off switch
5. Rear view mirror R
6. Front brake lever
7. Throttle grip
8. Electric starter switch
9. Fuel tank cap
10. Horn switch
11. Turn signal lamp switch
12. High / low beam switch
13. Clutch lever
14. Rear view mirror L
15. Pass by switch

## LOCATION OF PARTS - VEHICLE LEFT SIDE



1. Saree guard
2. Rear wheel axle
3. Rear shock absorber L
4. Pillion foot rest L
5. Rider foot rest L
6. Side stand
7. Center stand
8. Gear shift lever
9. Front wheel axle
10. Cover frame L
11. Pillion handle

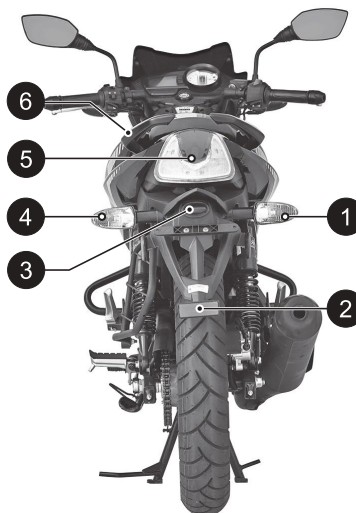
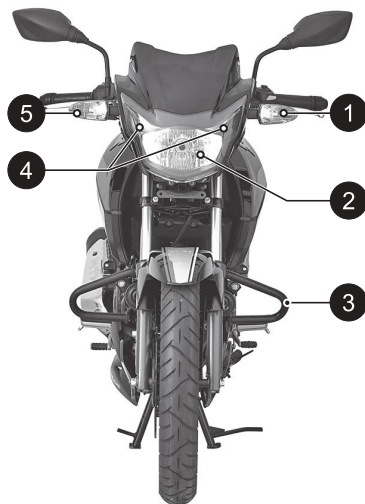
## LOCATION OF PARTS - VEHICLE RIGHT SIDE



1. Disc plate front
2. Cover toner ring
3. Front wheel axle nut
4. Wheel speed sensor front
5. Toner ring front
6. Caliper assembly front
7. Location of spark plug
8. Gauge oil level
9. Rear brake pedal
10. Rider foot rest R
11. Pillion foot rest R
12. Rear shockabsorber R
13. Disc plate rear\*
14. Muffler assembly
15. Cover frame R

\* Applicable only for rear disc brake model

## LOCATION OF PARTS - VEHICLE FRONT & REAR



### FRONT

1. Turn signal lamp front L
2. Head lamp assembly
3. Crash guard
4. Position lamps
5. Turn signal lamp front R

### REAR

1. Turn signal lamp rear R
2. Reflex reflector
3. Number plate lamp
4. Turn signal lamp rear L
5. Tail lamp assembly
6. Pillion handle

*License plates are mandatory accessory will be charged extra*

## CONTROL KEY

Your TVS Apache RTR 160 comes with a pair of identical control keys. These keys are to operate ignition cum steering lock, fuel tank cap and cover frame R.

## IGNITION CUM STEERING LOCK

The ignition cum steering lock enables and disables the electrical circuit and steering lock. The three positions of the switch are described below.

### 1. 'OFF' position

All the electrical circuits are deactivated. The key can be removed from the lock.

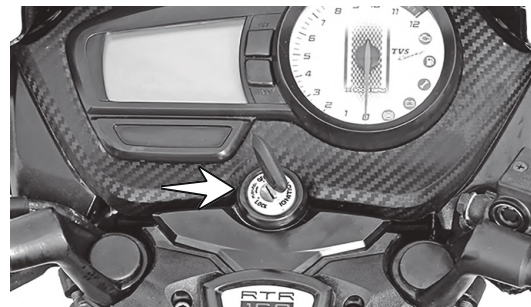
### 2. 'ON' position

All electrical circuits are activated. The instrument cluster and warning lights performs self-diagnostic cycle. Engine can be started. Control key cannot be taken out from the lock.

## Note

*When the ignition is turned ON with the engine kill switch ON condition, priming noise of pump may be heard which is absolutely normal.*

*Frequent switch 'OFF & ON' of ignition to be avoided. After ignition key reset, there may be a delay in start of vehicle for couple of seconds.*



### 3. 'LOCK' position

Your TVS Apache RTR 160 steering can be locked in both 'left' and 'right' directions.

Turn the handlebar to the 'left' or 'right'. Press the key 'IN' and rotate it to the 'LOCK' position from 'OFF' position. All the electrical circuits are deactivated and the steering is locked. The control key can be removed from the lock.

Insert the control key into the lock and press the key 'IN' and turn it to 'OFF' or 'ON' position to unlock the steering.

## **Warning**

*Never attempt to move the vehicle when the steering is locked, you may lose balance.*

## **Caution**

*Leaving the ignition cum steering lock in 'ON' position for a prolonged time will drain the battery when the vehicle is not in use. Switch 'OFF' and take the control key out when the vehicle is not in use.*

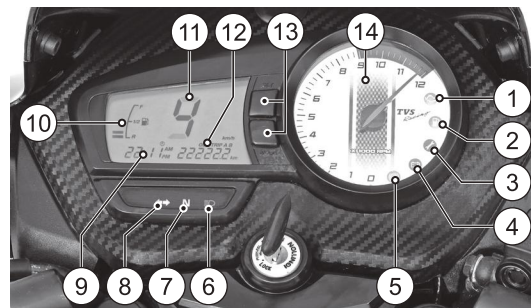
*Always lock the steering while parking for safety.*

## **Note**

*Instrument cluster's back illumination, position lamps, tail lamp and number plate lamp glow automatically once the ignition is turned 'ON' without activating any other switch.*

*When the ignition is turned 'ON', the instrument cluster performs self-diagnostic cycle (count down starts). Wait till the message 'GO' appears on the instrument cluster's dial.*

## **INSTRUMENT CLUSTER**



### **1. Malfunction indicator ( )**

Malfunction indicator lamp (MIL) is activated whenever the ignition is turned ON, till the engine is started. It will go OFF once the engine is started.

If this lamp glows continuously even after starting the engine, it indicates that there may be a error in the system.

**Immediately contact the nearest TVS Motor Company Authorised Main Dealer or Authorised Dealer.**

## 2. Low fuel indicator ( )

Low fuel indicator glows continuously when the fuel comes to below minimum safe level. Refill the fuel immediately.

## 3. Service reminder indicator ( )

If the service is due, whenever the ignition lock is turned 'ON', service reminder indicator blinks for 10 seconds after the speedometer's self diagnostic cycle and repeats this cycle till the vehicle is serviced and the reminder is reset. Get the vehicle serviced at TVS Motor Company Authorised Main Dealer / Authorised Dealer.



### Caution

*Before turning the IGNITION key to ON position, ensure the availability of adequate fuel in the tank. That is LOW FUEL INDICATION shall not come ON, before the start of the vehicle. To avoid dry run of fuel pump, never run vehicle beyond 5 km, after LOW FUEL INDICATION.*



### Note

*Service reminder indicator lamp works only based on the distance covered by the vehicle. This is only a reminder indicator. Customers are advised to keep track and follow the service schedule.*

## 4. Low battery indicator ( )

Low battery indicator glows when the battery charge is too low. Get the battery checked at TVS Motor Company Authorised Main Dealer / Authorised Dealer.

## 5. ABS warning lamp ( )

ABS warning lamp blinks when the ignition key is turned 'ON' and speedometer performing self check. This lamp goes 'OFF' once the vehicle reaches 7 km/h speed and above.

**If this lamp glows continuously then have your vehicle checked at TVS Motor Company Authorised Main Dealer / Authorised Dealer (refer page No. 04 for more details).**

## 6. High beam indicator ( )

Glows when the head lamp is activated in high beam.

## 7. Neutral indicator ( )

Glows when the vehicle is in neutral and goes 'OFF' if the gear is shifted from neutral.



### Note

*The ABS warning lamp will blink whenever the vehicle speed is less than 7 km/h which is normal. It also indicates that the ABS is working fine.*



### 8. Turn signal indicator ( ← → )

Flashes when the 'left' or 'right' side turn signal indication is activated.

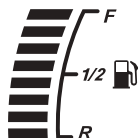
### 9. Digital clock

Digital clock indicates the time in 12 or 24 hour time format. Refer page No. 23 for changing the time format and setting the clock time.



### 10. Fuel gauge

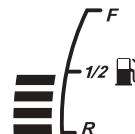
Digital bars indicate the approximate quantity of fuel available in the fuel tank. There are eight bars to indicate the quantity of fuel available in the tank.



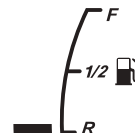
#### Note

If the battery is disconnected and reconnected during service. You may need to reset the time as explained in page No. 23.

All the eight bars will be displayed when the fuel in the tank reaches above 9 litres (full tank). When the fuel reaches half tank (6.5 litres approx.), the fuel gauge displays only four bars as shown.



The fuel gauge shows only single bar when the fuel reaches reserve level (3.3 litres approx.)



This single bar starts blinking when the fuel reaches to the minimum safe level 2.5 litres approximately. Once the fuel level reaches 2 litres approximately, no bar will be visible and the low fuel indicator (serial no. 2) starts glowing continuously.

**If all the fuel level bars in the cluster are blinking contact nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.**

## 11. Speedometer

Indicates the vehicle speed in kilometer per hour.

85 km/h

## 12. Odometer / Trip meter A & B / High speed indicator / Shortest time indicator

The procedure for setting each mode is given in page No. 22.

### 12a. Odometer

Odometer registers the total distance covered by the vehicle in kilometer per hour. The digit after the dot mark denotes one tenth of a kilometer. Set the meter in 'ODO' mode to know the odometer reading.

ODO  
250.2 km

### Note

*If you leave the ignition key in 'ON' position and the vehicle is kept without moving for more than 3 minutes, ODO segments starts blinking which is normal. If you notice the ODO segments are blinking while the vehicle is in move. Contact nearest TVS Motor Company Authorised Main Dealer for rectification.*

### 12b. Trip meter A & B

In ODO mode, press the mode button once and twice to enter 'TRIP A' and 'TRIP B' meters respectively. Trip meter indicates the trip distance travelled in kilometer. The digit after the dot mark denotes the one tenth of a kilometer.

Provision to measure two different trip distance 'TRIP A' or 'TRIP B' is provided for the users to use as per their convenience. You can reset it whenever is required. Refer page No. 22 for resetting procedure.

TRIP A  
128.4 km

TRIP B  
190.8 km

### 12c. High speed indicator

High speed indicator records the maximum speed (top speed) achieved by the rider so far. You can reset and record the new speed if required. Refer page No. 22 for resetting the high speed data.

105 km/h  
Hi SPD km

Set the meter in 'HI SPd' mode to know the maximum speed achieved by any user so far.

### **i Note**

*Maximum speed recorded so far will be displayed whenever the meter is set in 'HI SPd' mode.*

*This display will go off automatically once the vehicle starts moving (>1 km/h) and it will continue the normal operation. Max speed recorded will be stored until manual reset. If the high speed is reset, the speed value will be shown as '0'.*

#### 12d. Shortest time indicator

Shortest time indicator records the minimum time taken so far to reach 60 km/h speed.

You can reset and record new time if required. Set the meter in 'St' mode to know the time taken by a rider to reach the specific speed from starting. Refer page No. 22 for resetting the shortest time indicator.

**St - 5.6**

### **i Note**

*Minimum time taken recorded so far to reach 60 km/h speed will be displayed when the ignition is turned 'ON' and the meter is set in 'St' mode. You can reset the last time taken and record new time. The value will be displayed as 9.9 seconds if the 'St' mode is reset.*

*In shortest time mode, once the vehicle speed reaches 60 km/h the time will stop at the exact point and get recorded if the time is less than the last recorded time.*

*In shortest time mode, fuel level indication bars of fuel gauge may disappear. These bars may appear only after changing the mode from 'St' to another.*

### **13. Mode and Set switches**

To change the mode between 'ODO', 'TRIP A', 'TRIP B', 'HI SPd' & 'St' and to set the some of the digital display functions of the instrument cluster, the mode and set switches are provided.

Refer page No. 22 for the detailed procedure of changing the modes, to set / reset thier values and for clock setting.

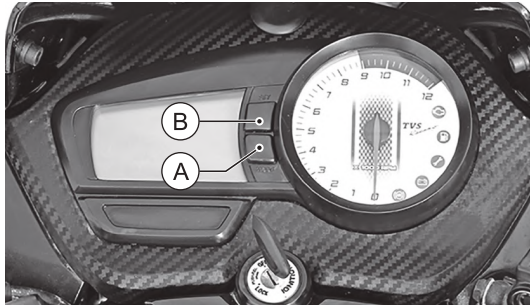
### **14. Tachometer**

Tachometer indicates the engine speed in multiplies of 1000 rpm (revolution per minute).

## ODOMETER / TRIP METER / HIGH SPEED INDICATOR / SHORTEST TIME INDICATOR SETTING

Every press of the Mode switch (A) changes the display to other mode. Follow the below procedures to change the display to desired mode.

Irrespective of the mode which is set while turning OFF the ignition, the meter will display only 'ODO' meter during next ignition ON.



1. In 'ODO' mode, press the Mode switch once and twice to enter 'TRIP A' and 'TRIP B' meters respectively.

- To reset any of the trip meter while ensuring the display is in 'TRIP A' or 'TRIP B', press and hold the Set switch (B) for a few seconds.
2. Press the Mode switch till the '**Hi SPD<sub>max</sub>**' display appears to set the 'HIGH SPEED' indicator mode.
    - To reset the high speed recorded, keep the display in '**Hi SPD<sub>max</sub>**' mode and press & hold the Set switch for a few seconds.
  3. Press the Mode switch till the display changes to '**54-99**' to set the 'SHORTEST TIME' indicator.
    - To reset the shortest time, keep the display in '**54-99**' mode and press & hold the Set switch for a few seconds.
  4. Press the Mode switch once to change the display to 'ODO' mode again.

## DIGITAL CLOCK SETTING

Digital clock can be set in 'ODO' mode only. Set the digital clock time in the following manner:

1. Change the instrument cluster to 'ODO' mode by pressing the Mode switch.
2. Press and hold the Mode switch (A) for a few seconds to change the clock timing to 12 or 24 hour format.
3. Press and hold the Set switch (B) for a few seconds to enter the clock setting mode.
4. Press the Mode switch to increase the hours (while hours digits are blinking).
5. To access the minutes, press the Set switch again for a few seconds.
6. Press the Mode switch to increase the minutes (while minutes digits are blinking).
7. Press the Set switch to exit the setting.

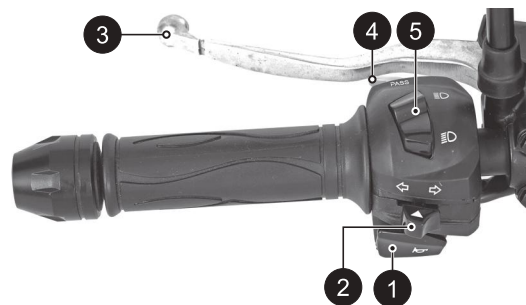
## HANDLE BAR LEFT SIDE

1. Horn switch

Press the switch (  ) to blow horn. It is used to attract the attention of other road users in case of danger.

2. Turn signal lamp switch

When the turn signal switch is moved to left '  ' or right '  ', the corresponding turn signal lamps flashes. To stop flashing, push the switch in.



### Warning

*Failure to switch the turn signal lamp 'ON' or 'OFF' at the right time may lead to an accident.*

### 3. Clutch lever

Press the lever towards grip to disengage the drive. It is used to disengage the clutch while shifting the gears.

### 4. Pass-by switch

Press the switch to flash the head lamp. It is used to give signal to the vehicles coming from the opposite direction while overtaking other vehicles during day.

The head lamp glows automatically once the engine is started. If the head lamp is glowing in 'Low' beam, on pressing the switch, the head lamp 'High' beam also glows along with the 'Low' beam.

If the head lamp is already glowing in 'High' beam, the pass-by system will not work.

### 5. Head lamp high / low beam switch

The head lamp glows automatically once the engine is started. Only the head lamp beam (high/low) can be controlled with the beam control switch.

Press the top end of switch for 'High' beam '⏏' and bottom end for 'Low' beam '⏏'.

### **Note**

*Pass by system will not work if the head lamp is glowing in 'High' beam.*

### **Warning**

*Use appropriate head lamp beam 'high / low' as per the traffic and road conditions for your safety and to avoid inconvenience to other riders.*

*It is strongly recommended to ride the vehicle in 'low' beam during day.*

### **Note**

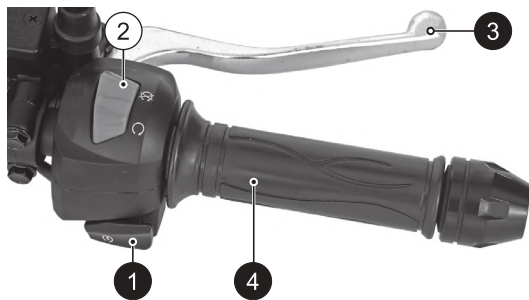
*Once the engine is started the head lamp glows automatically. Only head lamp beam (high/low) can be controlled using beam control switch.*



## HANDLE BAR RIGHT SIDE

### 1. Electric starter switch

Ensure the transmission is in neutral or else press the clutch lever before engaging the electric starter switch '⚡'.



### **i** Note

Ensure to turn ON the engine cut-off switch before starting the vehicle.

Release the electric starter switch immediately after pressing.

### 2. Engine cut off switch

It is '⊗' used to switch off the engine but to keep other DC system active. The ignition circuit is disabled, preventing the engine from being restarted. To restart the engine, return the switch to the '⊙' position.

### 3. Front brake lever

It controls a hydraulic circuit (ABS) that operates the front brake system. The front brake is applied by pressing the front brake lever gently towards the grip. The brake lamp glows on application of front brake.

### 4. Throttle grip

It controls the fuel-air mixture supplied to the engine, which regulates the engine speed. Rotate the throttle grip in counter-clockwise from its idle position to increase the engine speed and vice-versa to reduce.

### **i** Note

With the ignition switch ON and engine kill is turned ON, priming noise of fuel pump may be heard which is absolutely normal.

Frequent switch 'OFF' & 'ON' of ignition to be avoided to prevent unnecessary run of fuel pump.

**i Note**

*Apache RTR 160 is provided with adjustable LH and RH handles. Contact your TVS Motor Company Authorised Main Dealer / Authorised Dealer for any such adjustment.*

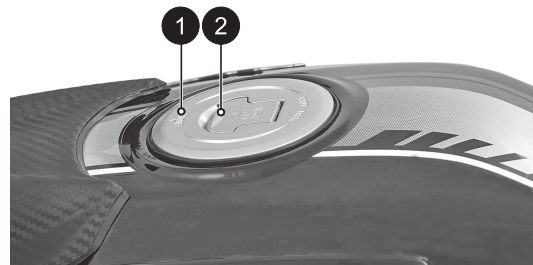
**⚠ Warning**

*Please do not adjust the handles your self or by any unauthorised persons. Improper adjustment may affect the maneuverability of the vehicle.*

**FUEL TANK# CAP**

Flush type fuel tank cap (1) is provided in TVS Apache RTR 160. To open the fuel tank cap, lift the protection lid (2), insert the control key into the lock, turn it in clockwise direction and take out the tank cap along with the key.

To close the cap, press the cap gently in its position by keeping the front end (  ) towards the handles. Take out the key while ensuring the proper locking of the cap and close the protection lid.



*# The fuel tank is not a measuring instrument and the capacity of the fuel tank may slightly vary from the indicated capacity.*

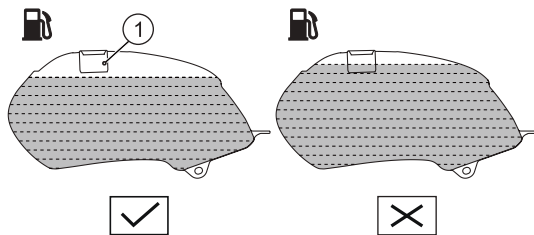


To avoid accumulation of water in the fuel tank, a small drain hole and a pipe is provided in the fuel tank lid cavity so that the water entering through the lid is drained out through the hose.

### **Warning**

*Do not smoke while refueling. Do not use cell phones while refueling. Avoid spilling of fuel on the hot engine. Refill petrol in well ventilated area. Switch off the engine while refueling as petrol is highly inflammable. After refilling close the cap properly.*

### **EVAPORATIVE EMISSION CONTROL SYSTEM**



This vehicle is fitted with Evaporative Emission Control System (EVAP). If there is any abnormal jerk, startability issue are felt in the vehicle or noise due to sudden escape of gas during opening of fuel tank cap, immediately report to the TVS Motor Company Authorised Main Dealer / Authorised Dealer.

### **Caution**

**Never fill fuel beyond the fuel tank inlet (1).** Filling above the inlet may result in improper breathing of fuel tank which leads to difficulty in starting as well as improper running of the vehicle.

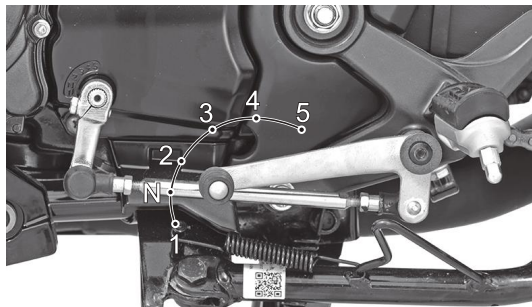
*Whenever refueling the bike fill only the recommended quantity of fuel (12 liters including reserve).*

*Do not clean the vehicle by laying down on floor, to avoid fuel entry into EVAP system.*

## GEAR SHIFT LEVER

TVS Apache RTR 160 is equipped with a 5 speed constant mesh transmission. Neutral (N) position of the transmission is indicated by the warning light on the speedometer.

To shift the transmission from neutral to first gear, push the gear shift lever down.



### Caution

Never shift gears without disengaging the clutch and releasing the throttle. Failure to comply this will lead to rough shift or jerk while shifting the gears. Remember to return to neutral position before restarting the engine.

To change it to the second gear, lift the lever up. Lifting the lever up repeatedly engages all the gears in succession up to the fifth gear.



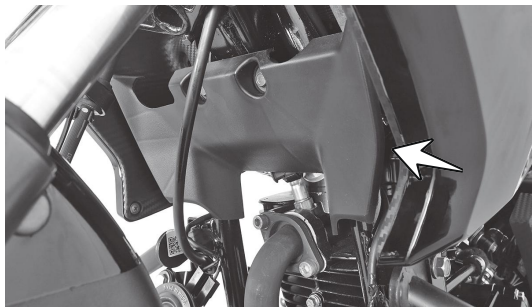
### Note

*Gear shift lever position can be set to your convenience. Contact your TVS Motor Company Authorised Main Dealer / Authorised Dealer for setting the gear shift lever position.*



## AIR DUCT

The Apache RTR 160 is designed with a air duct bellow the fuel tank and just above cylinder head which guides the air towards the cylinder head and gives additional colling effects to the engine and muffler for the better performance of the engine.

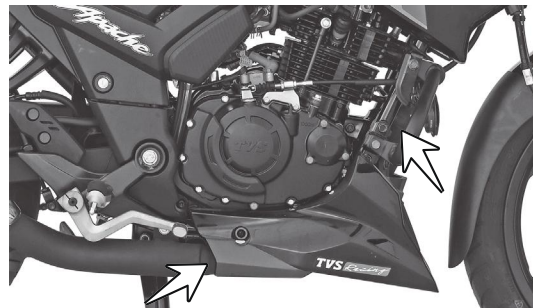


### **Caution**

*Care should be taken not to do any modification in the vehicle (remove the air duct or block the air duct passage). Else it will lead to over heating of engine and muffler.*

## CATALYTIC CONVERTER

The Apache RTR 160 has a dual catalytic converter to reduce and to meet the emission norms. **Muffler temperature near the catalytic converter can go very high, it is advised not to touch or bring any flammable object near the muffler to avoid severe burns.**

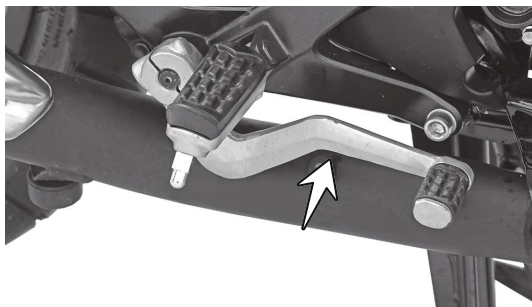


### **Warning**

**Ensure not touch or bring any flammable objects near the muffler, which may lead to severe burns.**

## REAR BRAKE PEDAL

The rear brake pedal operates the rear brake system and it is located adjacent to the right side foot rest. To control the speed of your vehicle close the throttle completely, and gradually press the brake pedal downwards.



### **i** Note

Rear brake pedal position can be set to your convenience. Contact your TVS Motor Company Authorised Main Dealer / Authorised Dealer for setting the brake pedal position. In case of rear drum brake model, after setting the brake pedal position, adjust the rear brake paly as explained in page No. 55.



### Caution

*Independent use of rear or front brake reduces the overall braking efficiency. In extreme conditions braking with only rear or front brake may lock the wheel which would result in skidding or toppling of vehicle.*

*Braking performance is affected adversely with wet surfaces, loose surfaces and overheating of brake system due to unnecessary continuous application of brakes. For safety, exercise extreme caution while braking and also at turning. Do not accelerate while turning.*

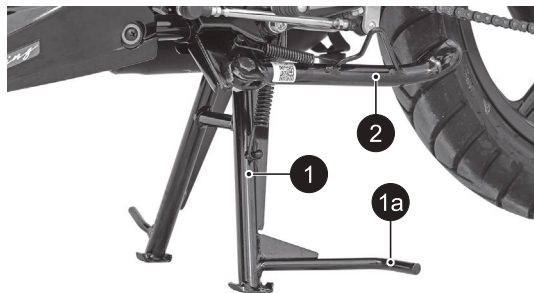


## STANDS

TVS Apache RTR 160 is equipped with a centre (1) and side stand (2). To place the vehicle on the centre stand, hold the handle bar left grip with left hand and pillion handle with right hand.

Place your foot firmly on the centre stand extension (1a) and press with adequate effort. Ensure both the legs of centre stand are touching the ground before placing the vehicle on the stand.

Side stand can be operated by sitting on the vehicle with your left foot by pushing it away from the vehicle to its extreme end.



### Caution

*Do not sit on the vehicle when it is parked on the side stand / centre stand, as your full weight would rest on the vehicle's only support.*



### Warning

*Park the motorcycle safely on a solid ground. On slopes, engage the first gear and park the vehicle in such a way that the front wheel faces uphill.*

*Always release the side stand to its full up position before moving the vehicle.*

## COVER FRAME R

TVS Apache RTR 160 is provided with a lockable cover frame on the right side for accessing the battery, rear disc brake fluid reservoir\* and seat lock cable. Cover frame R can be opened in the following manner :

1. Insert the control key in the cover frame lock (1) and rotate it in clockwise direction.
2. Take out the cover frame by gently pulling out at front (2) and rear (3) end of the cover frame.



To assemble the cover frame back

1. Locate the lugs of the cover frame at (2) & (3) to the holes provided in the fuel tank assembly and the frame while ensuring the availability of the cushion in the holes.
2. Gently press the cover frame lugs into the holes.
3. Now, lock the cover frame by turning the key in anti-clockwise direction.



### Caution

*Make sure that the cover frame is locked securely in position after installation.*

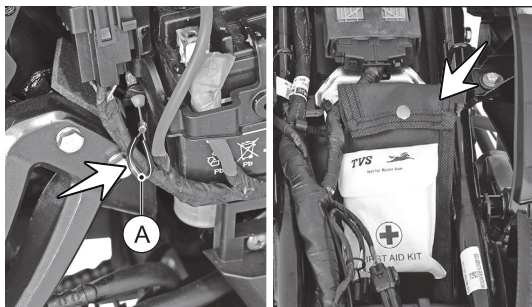
\* Applicable only for rear disc brake model



## TOOL KIT AND FIRST AID KIT

To assist you in performing certain aspects of periodic maintenance and emergency repairs, a tool kit is supplied along with the vehicle. A first aid kit is also available along with the tool kit.

Both tool kit and first aid kit are located under the seat assembly.



### Caution

Make sure that the seat assembly is locked securely in position after reassembly.

To access the tool kit / first aid kit, open the cover frame R as explained in the previous page and gently pull the seat lock cable (A). Now, take out the seat assembly by carefully releasing it from its lockings.

Tool kit consists of one number each of the following.

1. Grip driver
2. Bit (+) (-)
3. 12 x 14 open end spanner
4. Tool bag



### Caution

It is recommended to use the tool kit in case of any emergency only. It is always advisable to take your vehicle to TVS Motor Company Authorised Main Dealer / Authorised Dealer.



### Warning

Do not remove the tool kit and first aid kit from the vehicle. Always ensure to keep them along with the vehicle. Ensure the first aid equipments are changed periodically based on the date of expiry.

## PRE RIDE INSPECTION

Check the following items before riding

| ITEM                        | WHAT TO CHECK FOR                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------------------------|
| Engine cum transmission oil | Availability of oil upto the level (page No. 49)                                                                 |
| Fuel                        | Enough fuel for the planned distance of running                                                                  |
| Tyres                       | Correct pressure (page No. 57)<br>Adequate tread depth / No cracks or cuts.                                      |
| Battery                     | Proper working of all lamps, horn and pass by switch.<br>Low battery indication and battery charge (page No. 46) |
| Instrument cluster          | Performing self check / Proper working of ABS warning lamp (page No. 18)                                         |
| Malfunction indicator       | Turned OFF after starting the engine (page No. 17)                                                               |
| Steering                    | Smooth movement / No play or looseness                                                                           |
| Throttle                    | Correct free play of cable / Smooth operation                                                                    |
| Clutch                      | Correct free play of cable (page No. 50) / Smooth and progressive action                                         |
| Brakes                      | Availability of brake fluid and proper working of brake (page No. 53)                                            |
| Wheels                      | Free rotation                                                                                                    |
| Drive chain                 | Slackness and lubrication of chain (page No. 59)                                                                 |



### Caution

*Do not switch 'ON' the ignition without minimum level fuel in tank. It will cause damage to the fuel pump.*





## STARTING THE ENGINE

As you turn the ignition switch to the 'ON' position, the instrument cluster and the warning lights will go through the self-diagnostic cycle. During this phase, make sure that all the warning lights on the cluster comes on.

The following conditions must be verified before starting the engine.

- ❑ Availability of adequate amount of fuel.
- ❑ The engine cut off switch is in 'O' position.
- ❑ The gear is in neutral.
- ❑ If the gears are engaged, the clutch lever is pulled.

Press the start button without applying the throttle. As soon as the engine starts, release the start button. The engine will not start if the throttle is opened full.



### **Caution**

*Do not keep the engine in idling rpm for long.*

*Do not open excessive throttle when the vehicle is parked. It leads to overheating of engine and damage to the internal components.*

## SETTING THE VEHICLE IN MOTION

Press the clutch lever and engage first gear by pressing the gearshift lever down.

Open the throttle slowly and simultaneously, release the clutch lever gently and gradually. The vehicle starts moving forward.

As the vehicle picks up speed, shift to the next higher gear by closing the throttle, applying the clutch and lifting the gear shift lever up.

Release the clutch lever and open the throttle smoothly. Select the required gears in a similar manner.

### **Using the transmission**

The transmission is provided to keep the engine to run smoothly in its normal operating speed range.

The gear ratios have been carefully chosen to meet the characteristics of the engine. The rider should always select the most suitable gear to achieve the necessary speed and pulling power smoothly.

### **Riding on hills/gradients**

When climbing steep hills, the motorcycle may begin to slow down and show lack of power. At this point the rider should shift to a lower gear so that the engine will again be operating in its normal power range. Shift gears rapidly to prevent the motorcycle from losing momentum.

When riding down a hill, the engine may be used as brake by shifting to a lower gear.

### **STOPPING AND PARKING**

1. Close the throttle completely and apply both the brakes simultaneously.
2. Down shift the gears with clutch lever pressed / disengaged as the road speed decreases. Bring the engine to neutral position just before the vehicle stops.
3. Turn the ignition 'OFF'.
4. Park the vehicle on a firm, flat surface.
5. Lock the steering.

### **Warning**

*Reduce speed to a safe limit before turning / cornering. Do not apply brake while turning / cornering. Do not disengage clutch before braking.*

### **Warning**

*Since the engine and exhaust system becomes very hot, make sure to park the vehicle in a place where the pedestrians or children are not likely to touch the hot surface. Do not park near dry grass or any other flammable resources which might catch fire.*

*To avoid deterioration of paint gloss due to ultra violet rays and heat of sunlight, always park your motorcycle in a covered parking.*



## FUEL RECOMMENDATION

Use only BS VI or unleaded petrol with minimum RON 91.

Petrol mixed with ethanol will have impact on engine components. Contact your TVS Motor Company Authorised Main Dealer / Authorised Dealer for usage.



### Caution

*Never mix oil and petrol in the fuel tank. Always fill fuel from reputed and reliable fuel stations.*

## CHECKS AND TIPS FOR IMPROVING FUEL ECONOMY

### Regular checks

Carry out the periodic maintenance checks as specified in this manual (refer page No. 41).

Regular maintenance checks will save fuel ensuring trouble-free, enjoyable and safe riding besides keeping the environment clean.

### Spark plug

A dirty or defective spark plug leads to wastage of fuel due to incomplete combustion. Inspect and clean the spark plug if necessary. Visually inspect the spark plug gap. If the gap is found more replace the plug with a new one.

However the spark plug need to be replaced every 12000 kms or 1 year whichever is earlier. Always use recommended spark plug only.



### Caution

*Do not remove the spark plug when the engine is hot.*

### **Air cleaner element**

A dirty air cleaner element restricts airflow and increases fuel consumption. Replace the element every 12000 kms.

Since paper filter is used in your motorcycle, it is not advised to clean the filter. Replace the filter in case of any abnormalities.

### **Clutch**

Increase in engine speed during acceleration and constant speed running, without increase in vehicle speed indicates clutch slip. The clutch slip will cause high fuel consumption, poor acceleration and overheating of engine.

If the condition persists even after adjusting the clutch lever play, immediately have the clutch checked by TVS Motor Company Authorised Main Dealer / Authorised Dealer.



### **Caution**

*Never drive the vehicle with the clutch lever pressed. This will reduce the life of clutch and affect the vehicle performance and fuel economy.*

### **Engine cum transmission oil**

Dirty or less engine cum transmission oil increases the friction between various parts of the engine and reduces the engine life, thereby increases fuel consumption.

Regularly inspect the engine cum transmission oil for correct level and top-up if necessary. Get it replaced at regular intervals as per the maintenance schedule. Always use TVS TRU4 FULLY SYNTHETIC oil only (SAE 10W 30 API-SL, JASO MA2).

### **Fuel leak**

If any fuel leak from tank is suspected, tow the vehicle to the nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.

### **Tyres**

Low tyre pressure has adverse effects on the vehicle. The drag on the vehicle increases resulting in decreased fuel economy. Further more, handling may be affected adversely.



### **Caution**

*Do not attempt to do any rectification, as fuel lines are normally pressurized upto 3.5 bar and any activity by any untrained personnel, may lead to un-safe condition.*



Check the tyre pressure regularly (weekly) and inflate them to the recommended pressure (refer page No. 57). Never use tyres which are worn out beyond the permissible limit.

**Chain slackness**

Check and ensure drive chain slackness. Excess slackness leads to higher fuel consumption (refer page No. 59).

**Wheels free movement**

Check and ensure the free movement of wheels by rotating them at least once in a week to avoid wastage of fuel.

**Fast starting from rest wastes fuel**

A racing start from rest at full throttle will waste fuel and damage the engine. It also creates a potentially dangerous traffic situation. Fuel is wasted whenever the rider suddenly accelerate or apply brake.

**Avoid unnecessary idling**

While waiting for someone or stopping in signals for long time, if the engine is kept running at idle speed, it causes unnecessary wastage of fuel.

**Avoid frequent braking**

Anticipate corners and slopes as well as the traffic conditions. Unnecessary and frequent braking reduces the fuel economy.

** Note**

*Please note that the on-road mileage of TVS Apache RTR 160 is dependent on several factors like road condition, quality of fuel, riding speed, operation of clutch and brake, tyre inflation, maintenance / timely servicing of vehicle, load etc.. and hence will differ from the mileage given under standard test conditions.*

### MAINTENANCE SCHEDULE

The maintenance schedule indicates the intervals between periodic services. At the end of each interval, be sure to inspect, check, replace, adjust, lubricate and service as instructed. If the maintenance is not done periodically, it will result in rapid wear and severe damage to the vehicle. If the vehicle is used under high stress conditions such as continuous full throttle operation or is operated in dusty area, certain jobs should be performed more often to ensure reliability of the vehicle. Fi componetns, cylinder head, steering components, suspension, chain and wheel components etc., are key items and require very special and careful servicing. TVS Motor Company Limited strongly recommends that the jobs as per the maintenance schedule be performed by your TVS Motor Company Authorised Main Dealer / Authorised Dealer.

Periodic inspections may reveal one or more parts that may need replacement. Whenever replacing parts on TVS Apache RTR 160, it is recommended that you use only the TVS Motor Company Genuine parts.



### Caution

*Proper running-in and maintenance are mandatory for making certain that your vehicle is reliable and gives optimum performance at all times. Make sure that the periodic maintenance is performed thoroughly in accordance with the instructions given in this owner's manual.*

*In more dusty areas, the air filter element required early replacement than the mentioned kilometers to avoid costly damages to the engine.*



## PERIODIC MAINTENANCE SCHEDULE (months or km whichever occurs earlier)

| Item                                        | Service<br>km<br>Period from the date of sale | In free service           |                              |                              |                              |                                 | After free service |                  | Remarks                                      |
|---------------------------------------------|-----------------------------------------------|---------------------------|------------------------------|------------------------------|------------------------------|---------------------------------|--------------------|------------------|----------------------------------------------|
|                                             |                                               | 1st<br>500-750<br>1 month | 2nd<br>2500-3000<br>3 months | 3rd<br>5000-6000<br>6 months | 4th<br>8500-9000<br>9 months | 5th<br>11500-12000<br>12 months | Every<br>3000 km   | Every<br>6000 km |                                              |
| Engine cum transmission oil                 |                                               | R                         | I&T                          | R                            | I&T                          | R                               | I&T                | R                |                                              |
| Oil filter (strainer)                       |                                               | C                         | –                            | C                            | –                            | C                               | –                  | C                |                                              |
| Oil filter (paper filter)                   |                                               | R                         | –                            | R                            | –                            | R                               | –                  | R                |                                              |
| Spark plug <sup>1</sup>                     |                                               | I                         | –                            | –                            | –                            | R                               | –                  | –                |                                              |
| Air cleaner element                         |                                               | I                         | –                            | –                            | –                            | R                               | –                  | –                | Replace every 12000 km                       |
| SAI hose connections                        |                                               | I                         | –                            | –                            | –                            | –                               | –                  | –                |                                              |
| Tappet clearance                            |                                               | I & A                     | –                            | I & A                        | –                            | I & A                           | –                  | I & A            | Adjust if required                           |
| Clutch plates                               |                                               | –                         | –                            | –                            | –                            | –                               | –                  | –                | Inspect & replace if required every 21000 km |
| Engine breather hose                        |                                               | I                         | I                            | I                            | I                            | I                               | I                  | –                | Replace every 21000 km if required           |
| Throttle body rubber ducts                  |                                               | –                         | I                            | I                            | I                            | I                               | I                  | –                | Replace every 21000 km if required           |
| Fuel filter                                 |                                               | I                         | I                            | I                            | I                            | I                               | I                  | –                |                                              |
| Hose fuel with respective clamps            |                                               | I                         | I                            | I                            | I                            | I                               | I                  | –                | Replace every two years or 21000 km          |
| Clutch and throttle cable play <sup>2</sup> |                                               | I, A & L                  | I, A & L                     | I, A & L                     | I, A & L                     | I, A & L                        | I, A & L           | –                |                                              |
| Throttle grip                               |                                               | –                         | –                            | L                            | –                            | L                               | –                  | L                | Lubricate using grease                       |

<sup>1</sup> Replace every 12000 km or 1 year whichever is earlier

<sup>2</sup> Inspect for proper operation and adjust play. Lubricate ends using grease.

Contd...

| Item                                        | Service<br>km | In free service            |                              |                              |                              |                                 | After free service |                  | Remarks                                                       |
|---------------------------------------------|---------------|----------------------------|------------------------------|------------------------------|------------------------------|---------------------------------|--------------------|------------------|---------------------------------------------------------------|
|                                             |               | 1st<br>500- 750<br>1 month | 2nd<br>2500-3000<br>3 months | 3rd<br>5000-6000<br>6 months | 4th<br>8500-9000<br>9 months | 5th<br>11500-12000<br>12 months | Every<br>3000 km   | Every<br>6000 km |                                                               |
| Steering smooth operation/play <sup>3</sup> |               | I & A                      | –                            | –                            | –                            | C, L & A                        | –                  | –                | C & L with fresh Bechem premium grade 3 grease every 12000 km |
| Front fork oil                              |               | –                          | –                            | –                            | –                            | –                               | –                  | –                | Replace every 18000 km                                        |
| Front and rear suspension <sup>4</sup>      |               | I                          | I                            | I                            | I                            | I                               | I                  | –                |                                                               |
| All fasteners                               |               | I & TI                     | I & TI                       | I & TI                       | I & TI                       | I & TI                          | I & TI             | –                | Tighten if necessary                                          |
| Drive chain**                               |               | C, L & A                   | C, L & A                     | C, L & A                     | C, L & A                     | C, L & A                        | C, L & A           | –                | Adjust if necessary                                           |
| All bulbs, horn and switches                |               | I                          | I                            | I                            | I                            | I                               | I                  | –                | Inspect for proper functioning                                |
| Head lamp beam                              |               | I & A                      | I & A                        | I & A                        | I & A                        | I & A                           | I & A              | –                |                                                               |
| Battery voltage <sup>5</sup>                |               | I                          | I                            | I                            | I                            | I                               | I                  | –                |                                                               |
| Brake effectiveness                         |               | I                          | I                            | I                            | I                            | I                               | I                  | –                |                                                               |
| Brake pedal shaft                           |               | L                          | L                            | L                            | L                            | L                               | L                  | –                | Lubricate using TRU4 oil                                      |

<sup>3</sup> Inspect for smooth steering rotation, steering shake / noise. Adjust the steering if necessary.

<sup>4</sup> Inspect for smooth and proper function of front and rear suspension. Also inspect for any visual damage and oil leakage.

<sup>5</sup> Recharge if necessary

\*\* Clean the drive chain with dry cloth and apply TRU SPRAY / TRU 4 oil as frequently as every 500 km for better chain life and smooth vehicle running. Check drive chain, rear sprocket and engine sprocket for wear. If any part is worn, replace the same. Always replace the engine sprocket, rear sprocket and chain together.

Contd...



| Item                                 | Service<br>km | In free service             |                              |                              |                              |                                 | After free service |                  | Remarks                                                              |
|--------------------------------------|---------------|-----------------------------|------------------------------|------------------------------|------------------------------|---------------------------------|--------------------|------------------|----------------------------------------------------------------------|
|                                      |               | 1st<br>500- 750<br>1 months | 2nd<br>2500-3000<br>3 months | 3rd<br>5000-6000<br>6 months | 4th<br>8500-9000<br>9 months | 5th<br>11500-12000<br>12 months | Every<br>3000 km   | Every<br>6000 km |                                                                      |
| Brake shoe* / pad wear               |               | I                           | I                            | I                            | I                            | I                               | I                  | –                | Replace if necessary                                                 |
| Brake fluid                          |               | I & T                       | I & T                        | I & T                        | I & T                        | I & T                           | I & T              | –                |                                                                      |
| WSS / toner ring                     |               | I & C                       | I & C                        | I & C                        | I & C                        | I & C                           | I & C              | –                | Replace if damaged                                                   |
| WSS cable clamps -<br>(front & rear) |               | I                           | I                            | I                            | I                            | I                               | I                  | –                | Fix new clamp<br>if found missing                                    |
| WSS cable                            |               | I                           | I                            | I                            | I                            | I                               | I                  | –                | Replace if damage                                                    |
| Brake hose / bundy tubes             |               | I                           | I                            | I                            | I                            | I                               | –                  | I                | Replace every 30000 km                                               |
| Bundy tube mounting (all joints)     |               | I & TI                      | I & TI                       | I & TI                       | I & TI                       | I & TI                          | I & TI             | –                | Inspect for leak                                                     |
| HECU mounting cushions               |               | –                           | –                            | I                            | –                            | I                               | –                  | I                | Replace every 30000 km                                               |
| Toner rings teeth damage             |               | I                           | I                            | I                            | I                            | I                               | I                  | –                | Replace if necessary                                                 |
| Malfunction codes & MIL check        |               | I                           | I                            | I                            | I                            | I                               | I                  | –                |                                                                      |
| Master cylinder cups                 |               | –                           | –                            | –                            | –                            | –                               | –                  | –                | Replace every 21000 km                                               |
| Wheel freeness                       |               | I                           | I                            | I                            | I                            | I                               | I                  | –                |                                                                      |
| Tyre pressure at cold condition      |               | I & S                       | I & S                        | I & S                        | I & S                        | I & S                           | I & S              | –                |                                                                      |
| Ball joint gear shift lever          |               | –                           | –                            | L                            | –                            | L                               | –                  | L                | Lubricate using grease                                               |
| Centre / side stand pivot            |               | L                           | L                            | L                            | L                            | L                               | L                  | –                | Lubricate using TRU4 oil                                             |
| Swing arm bearings                   |               | –                           | –                            | –                            | –                            | –                               | –                  | –                | C & L with fresh Bechem<br>premium grade 3 grease<br>every two years |

# Applicable for rear drum brake model

Contd....

| Item                                | Service<br>km<br>Period from the date of sale | In free service           |                              |                              |                              |                                 | After free service |                  | Remarks                                    |
|-------------------------------------|-----------------------------------------------|---------------------------|------------------------------|------------------------------|------------------------------|---------------------------------|--------------------|------------------|--------------------------------------------|
|                                     |                                               | 1st<br>500-750<br>1 month | 2nd<br>2500-3000<br>3 months | 3rd<br>5000-6000<br>6 months | 4th<br>8500-9000<br>9 months | 5th<br>11500-12000<br>12 months | Every<br>3000 km   | Every<br>6000 km |                                            |
| Evaporative emission control system |                                               | I                         | I                            | I                            | I                            | I                               | I                  | –                | Check for intactness of hoses and canister |
| Fuel tank assembly**                |                                               | I & C                     | I & C                        | I & C                        | I & C                        | I & C                           | I & C              | –                |                                            |

R - Replace; I - Inspect; T - Top up; C - Clean; A - Adjust; DR - Drain; L - Lubricate; TI - Tighten; S - Set

**\*\* Check for abnormal vehicle jerk / noise while opening the cap / leak. If found any, contact TVS Motor Company Authorised Main Dealer or Authorised Dealer.**

## RECOMMENDED LUBRICANTS

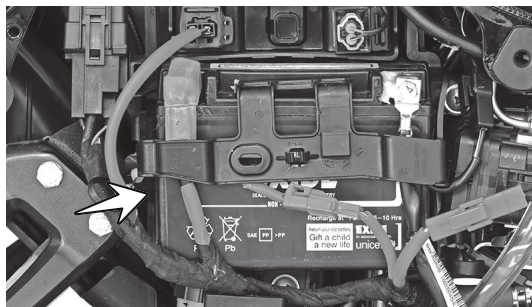
| APPLICATION                 | QTY                                                            | MANUFACTURER                      | BRAND                                                        |
|-----------------------------|----------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------|
| Engine cum transmission oil | 1000 ml (after draining)<br>1100 ml (after disassembly)        | TVS Motor Company                 | TVS TRU4 FULLY SYNTHETIC oil<br>(SAE 10W30 API-SL, JASO MA2) |
| Front fork oil              | 140 ± 2 ml / leg (Gabriel make)<br>152 ± 2 ml / leg (Top make) | IOC / Castrol                     | Teleshockab oil                                              |
| Disc brake fluid            | –                                                              | TVS Girling                       | DOT 3 / DOT 4                                                |
| Grease                      | –                                                              | Bharat petroleum<br>IOC<br>Bechem | MP Grease no. 3<br>Servo Gem no. 3<br>Bechem premium grade 3 |
| Chain lubricant             | –                                                              | TVS Motor Company                 | TRU SPRAY                                                    |

## SELF - MAINTENANCE PROCEDURES

### BATTERY

To ensure better performance and long life of battery, you are requested to follow the steps given bellow :

1. Remove the cover frame R (refer page No. 32).
2. Check the battery voltage. If the voltage measured is less than 12.4V, charge the battery using TVS Motor Company Limited recommended battery charger only at TVS Motor Company Authorised Main Dealer / Authorised Dealer.
3. Apply petroleum gelly to the terminals to avoid corrosion.
4. Do not add additional electrical accessories.



### Caution

*Never check the battery charge by shorting the terminals. Always connect the positive terminal first (red wire) and then negative (black wire) to avoid sparking.*

*The inversion of the battery wires can damage the battery and the recharging system.*

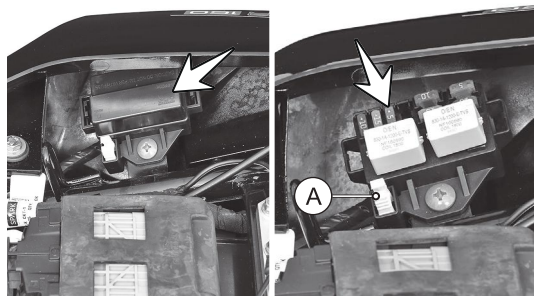
*If the motorcycle is to remain unused for a long time (a month or longer), it is advisable to disconnect the battery cables or have the battery removed by skilled personnel.*

## FUSE REPLACEMENT

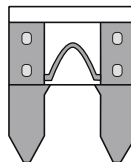
The electrical components of your motorcycle are protected by four fuses. Out of which three fuses are housed inside a fuse box and located below the seat assembly (at right side). One fuse is located below the cover frame above the battery.

### To access the fuses located below the seat :

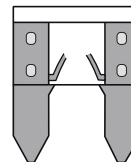
1. Turn 'OFF' the ignition.
2. Park the motorcycle on a flat firm surface and remove the seat assembly as explained in page No. 33.
3. Open the fuse box lid.



**Good Fuse**



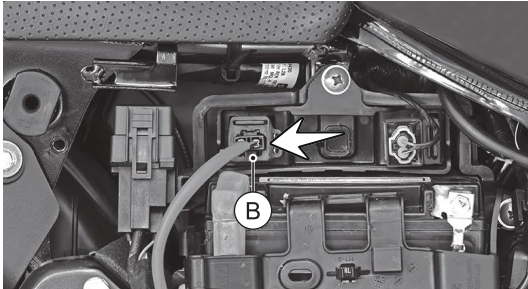
**Blown Fuse**



4. The fuse box contains two 10A fuses, one 15A fuse and one 5A fuse. Out of this, one 10A fuse is used for ABS system while the other one is used for EMS system. 15A fuse used for DC loads and the 5A fuse is used for ABS system again. Use the 'fuse puller' (A) placed near the fuse box to pull out the blown fuse.
5. Replace the blown fuse with a new one with same rating (extra fuses are provided inside the fuse case itself).
6. Close the fuse box lid and fix back the seat assembly.

### To access the fuse located below cover frame :

1. Remove the cover frame R as explained in page No. 32.
2. Pull out and open the fuse holder (B). Take out the blown fuse (Main fuse - 25A).



3. Replace the blown fuse with a new one with the same rating (extra fuse is provided in the fuse holder itself).
4. Turn 'ON' the ignition lock and check for proper functioning of electrical and ABS system. In case if the fuse fails again, consult the nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.



### Caution

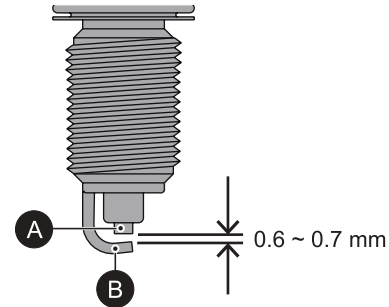
Do not use vehicle by **shorting the wires without a fuse**. This may result in overheating of electrical / wiring and may result in fire. Never replace a fuse with a rating other than that prescribed, in order to avoid damage to the electrical equipment.

### SPARK PLUG

1. Wipe and clean the dust and mud around the spark plug mounting to avoid their entry inside the cylinder.
2. Pullout the suppressor cap from spark plug. Remove the spark plug using a plug spanner.

A spark plug with heavy carbon deposits will not produce strong sparks. Hence, only if necessary, remove the carbon deposits from the spark plug with a small wire brush or spark plug cleaning tool.

Inspect the spark plug electrodes (A) and (B) for any corrosion. If found any replace the spark plug with a new one.



Visually inspect the spark plug gap. The gap should be 0.6 to 0.7 mm. If the gap is found to be more than the limit replace the spark plug with a new one. After cleaning and inspecting the gap, reinstall the spark plug and tighten by hand to avoid cross threading. Finally tighten using the spanner. Do not over tight or cross thread the spark plug.



### Caution

*Always use only recommended make and type of spark plug. **Replace spark plug every 12000 km or 1 year whichever is earlier.***

*Cover the spark plug hole with a cloth when the plug is removed to prevent entry of dust / water.*

*It is advisable to tighten the new spark plug by hand till the end, using plug spanner tighten by 1/4 turn. Then loosen the plug by 1/8 turn and re-tighten using plug spanner.*



### ENGINE CUM TRANSMISSION OIL

Check the engine cum transmission oil level periodically. The gauge oil level is provided at the right-hand side crankcase cover.

1. The check must be performed when engine is in cold condition, after placing the motorcycle in center stand with front wheel touching the ground.



2. Place the motorcycle in an upright position on a horizontal and firm surface.
3. Wipe-off the surroundings of gauge oil level.
4. Remove the gauge oil level and wipe it clean.
5. Re-insert the gauge oil level by completely screwing it in.
6. Once again remove the gauge and check the oil level.

7. The oil level should be between the minimum and maximum level marks on the gauge as shown in the figure.
8. If the oil level is below the minimum level, top up with TVS TRU4 FULLY SYNTHETIC oil (SAE 10W 30 API-SL, JASO MA2) upto the maximum level mark. Do not overfill.
9. Wipe out the oil traces with a clean cloth to prevent dust accumulation and re-fix the gauge.

**Caution**

*Do not run the vehicle with insufficient / without engine cum transmission oil as it will cause serious damage to the engine components.*

*Excessive oil filling will cause oil leak and other malfunctions. Always use TVS TRU4 FULLY SYNTHETIC oil only (SAE 10W 30 API-SL, JASO MA2).*

*Make sure that no foreign object gets in the crankcase while topping up the engine oil.*

**Warning**

*Correctly recycle or dispose the used engine oil in order to avoid environmental pollution.*

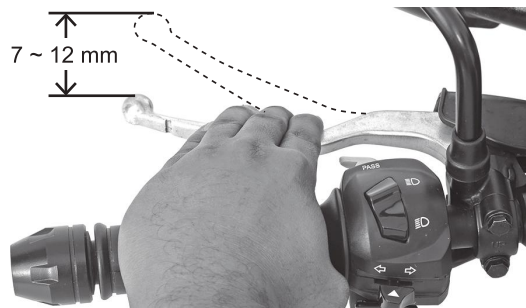
**CLUTCH ADJUSTMENT**

Clutch lever free play is one of the most important adjustment which you may need to check in-between services for better life of the clutch plates.

The free play of the clutch lever should be 7 to 12 mm as measured at the clutch lever end at handle bar (as shown in fig).

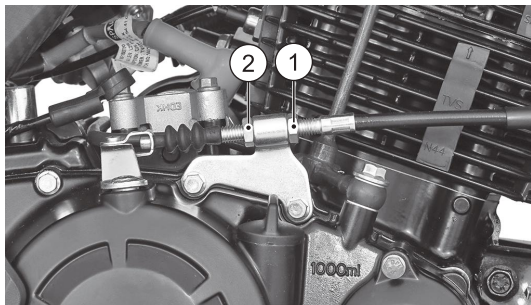
If the free play is not within the specified limit, adjust the clutch lever free play periodically by means of clutch cable adjuster at arm clutch release.

1. Ensure that the engine is cold (engine oil at room temperature).





2. Loosen the lock nut (2) while holding the clutch cable adjusting nut (1).
3. Adjust the clutch cable adjusting nut (1) 'in' or 'out' to give sufficient play in the clutch lever.
4. After adjusting the play, hold the adjuster nut in the same position, tighten the lock nut.



 **Caution**

*Too much or too less clutch lever free play will damage the clutch plates, thereby affecting the performance of the vehicle.*

***Adjust the clutch lever free play only when the engine is cold.***



**Caution**

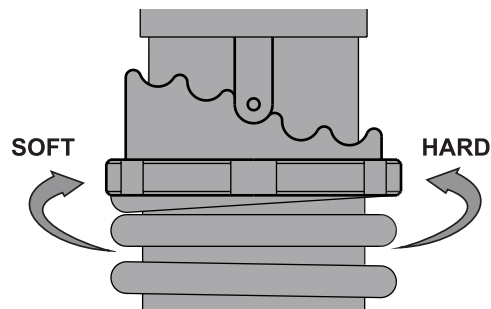
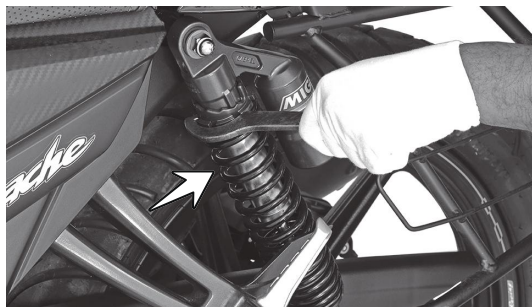
*After adjusting free play properly, if there is a clutch slip or there is difficulty in shifting gear, visit your TVS Motor Company Authorised Main Dealer / Authorised Dealer for rectification.*

## REAR SHOCK ABSORBER

TVS Apache RTR 160 is provided with triple rated, 5 step adjustable, monotube inverted gas filled rear shock absorbers to meet different road and load. There are 5 notches for adjusting spring load.

If the spring is adjusted to the minimum notch, then the shock absorber will be softer which is good for light loads. If the spring is adjusted to maximum notch then it will be stiffer which is good for heavy loads.

Adjust the spring pre-load by shifting the adjuster to the required notch according to the different load conditions. The more you compress the spring, the suspension becomes more stiff.



### **Warning**

*Do not heat / tamper the canister filled with GAS.*

### **Caution**

*Keep both left and right shock absorbers spring adjusters in the same position. Adjust step by step. Do not go at a stretch as it will damage the cam.*

### **Note**

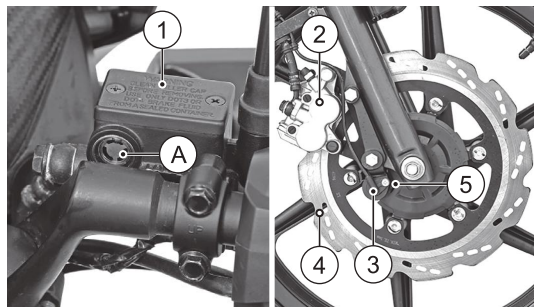
*During the time of delivery of the motorcycle, the rear suspension is adjusted to the standard configuration.*

## BRAKES

### Front brake

You can observe a master cylinder (1) on the right side of the handle bar, a caliper assembly (2) fitted to the fork leg R along with a wheel speed sensor (3), a disc (4) and the toner ring (5) to the front wheel. Also you can observe a high pressure hose connecting the master cylinder to the HECU of ABS system and another hose connecting HECU to the caliper assembly.

1. Check the master cylinder brake fluid level through the view piece glass (A).



2. Brake fluid level always should be above the 'LOWER' mark (B) on the master cylinder when the master cylinder is parallel to the ground.
3. If the brake fluid level is below the mark or while applying brake if you feel the brake is more spongy or ineffective due to air entry, contact TVS Motor Company Authorised Main Dealer / Authorised Dealer for topping-up the brake fluid, air bleeding and other brake related inspections.



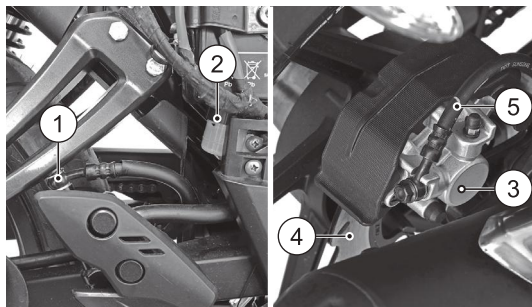
### **i** Note

*Check the brake fluid level only when the master cylinder is parallel to the ground.*

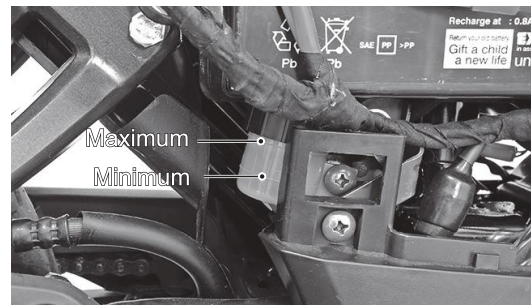
## Rear brake - Disc type

You can observe a master cylinder (1) mounted on the right side pillion foot rest, a reservoir (2) below the cover frame R, a caliper assembly (3) fitted on the rear wheel axle, a disc (4) to the rear wheel and a high pressure hose (5) connecting the master cylinder to the caliper.

1. Remove the cover frame R (refer page No. 32 for removal procedure).
2. Check the brake fluid level in the reservoir. It should be between maximum and minimum level.



3. If the brake fluid level is below minimum or while applying brake if you feel the brake is more spongy or ineffective due to air entry, contact TVS Motor Company Authorised Main Dealer / Authorised Dealer for topping-up the brake fluid, air bleeding and other brake related inspections.

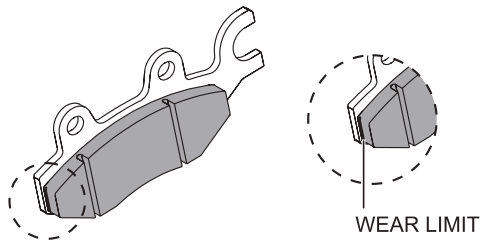


### **i** Note

*Check the brake fluid level only when the master cylinder is parallel to the ground.*

### Brake pad wear indicator

Visually check the brake pads for wear. If the wear is found beyond the wear indicator groove as shown in the figure then, replace the brake pads as a set with a new one.



#### **Warning**

*Lack of maintenance of the brake system increases the risk of accident. If you notice any malfunction in brake system contact nearest TVS Motor Company Authorised Main Dealer / Authorised Dealer.*

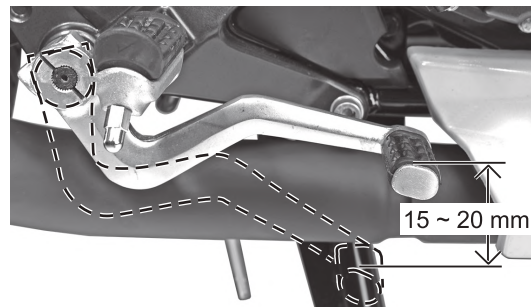
#### **Caution**

*Replace the brake pads as a set, if the wear indicator shows beyond the wear limit.*

### Rear brake - Drum type

Measure the free play of the rear brake pedal at the pedal end as shown in the figure.

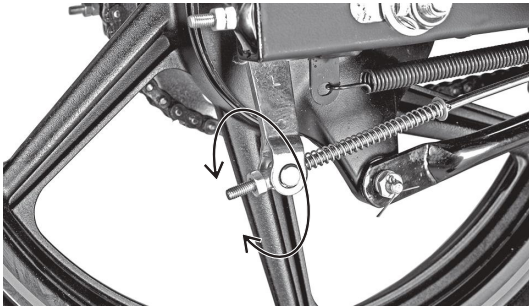
1. The free play of the brake pedal before the engagement of brake should be between 15 ~ 20 mm.



#### **Warning**

*Check the brake pedal play periodically. However the brake play needs to be adjusted more frequently depending upon the usage.*

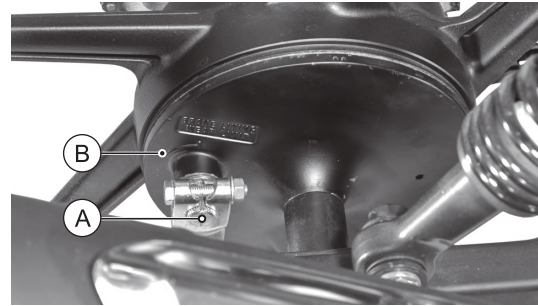
2. If the measured free play is more than the limit, adjust the nut provided at the rear wheel end to obtain the correct play.
3. Turn the adjuster nut clockwise to reduce the free play or turn it in anti-clockwise direction to increase the free play.



### Brake shoe wear indicator

When the brake is applied, the wear index mark (A) on the cam brake should be within the range of wear limit indicator (B) on the rear brake panel assembly.

In case of the mark going beyond the wear limit, index the lever to next slot with the help of Dealer to extend shoe life.



### **Caution**

*Replace the brake shoes as a set, if the wear limit indicator shows beyond the wear limit even after indexing the lever.*

## TYRES\*

### Tyre pressure:

Check the tyre pressure atleast once in a week if not more frequently. Insufficient air pressure in the tyres not only hasten tyre wear, but also seriously affects the stability of the vehicle.

Under-inflated tyres make smooth cornering difficult and over-inflated tyres decreases the tyre contact with the ground which can lead to skidding and loss of control. Be sure that the tyre pressure is within the specified limits at all times.

|       | Solo                             | Pillion                          |
|-------|----------------------------------|----------------------------------|
| Front | 1.75 kg/cm <sup>2</sup> (25 psi) | 1.75 kg/cm <sup>2</sup> (25 psi) |
| Rear  | 2.00 kg/cm <sup>2</sup> (28 psi) | 2.25 kg/cm <sup>2</sup> (32 psi) |

### Warning

*The tyre inflation pressure in cold condition and the tyre tread condition are extremely important for the performance and safety of the rider. Check the tyres frequently for inflation pressure as well as the wear pattern on it. Use of a tyre other than the standard will cause instability.*

### Tyre tread condition

Operating the vehicle with excessively worn tyres will decrease riding stability and can lead to loss of control. It is recommended to replace the tyre when the tyre wears off to the tyre wear indicator level (indicated by TWI on the tyre).



\* ***The pneumatic tyres fitted in this vehicle meet the requirements specified by BIS and comply with the requirements under the Central Motor Vehicles Rules (CMVR), 1989.***

### **Tyre rotation direction**

While reassembling the tyre, after removing from wheel rim, ensure that the arrow mark (A) provided on the tyre, faces the direction of wheel rotation.

### **Tyre puncture**

TVS Apache RTR 160 is fitted with a tubeless tyre on both front and rear wheel. In case of any puncture / tyre damage it is advised to visit nearest tyre manufacturer Dealer or the tyre repair shops who know the repairing methods of tubeless tyre. It is not necessary to remove the tyre from wheel rim always to attend the puncture. Even though, if there is a need of tyre removal, it is strongly recommended to use a tyre removal / fitment machine.

If at all, tyre levers need to be used, the levers should be free from sharp edges and care should be taken not to damage the rim and tyre.

### **Warning**

*Use of a tyre other than the standard may cause instability and improper function of ABS.*

*Keep the toner ring upwards whenever the wheel is removed in order to avoid damage to the toner ring. Damaged toner ring affects the ABS function.*



### **Caution**

*Side walls of the tubeless tyres which are in contact with the wheel rim are only seals the air inside the wheel assembly. Hence, care should be taken not to damage the side walls of the tyres during removal / reassembly.*

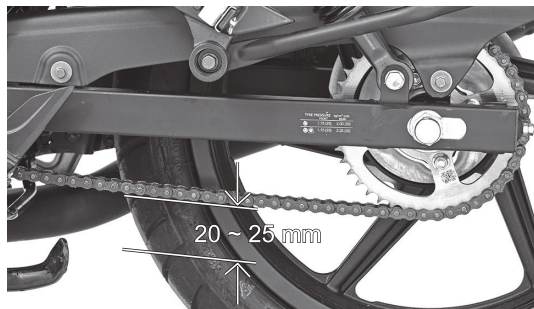




## DRIVE CHAIN

Proper lubrication and adjustment of drive chain gives long service life of the chain. Poor maintenance of the chain causes premature wear or damage to the drive chain and sprockets. The drive chain must be cleaned, checked, lubricated and adjusted at specified intervals mentioned in the maintenance schedule.

**Even though the chain is cleaned, lubricated and adjusted during regular service by the Dealers, the user must clean the chain with a dry cloth and apply TRU SPRAY / TRU4 oil as frequently as every 500 km for better chain life and smooth vehicle running.**



Check, clean, lubricate and adjust the drive chain in the following manner :

1. Place the vehicle on centre stand with the transmission in neutral.
2. Inspect the drive chain slackness (vertical movement) using the finger as shown in the figure.
3. The slackness of the drive chain should not exceed the limit (20 ~ 25 mm).
4. If the slackness is found more contact TVS Motor Company Authorised Main Dealer / Authorised Dealer for adjustment.
5. If the slackness is found within the limit, clean the chain with a dry cloth and lubricate using TRU SPRAY / TRU4 oil.

### **Warning**

*Riding with improperly adjusted chain / high slackness can cause the chain to come off the sprockets resulting in accident or serious damage to the motorcycle.*

*Misalignment of rear wheel or sprockets can cause abnormal wear of chain and sprockets and results in unsafe riding condition.*

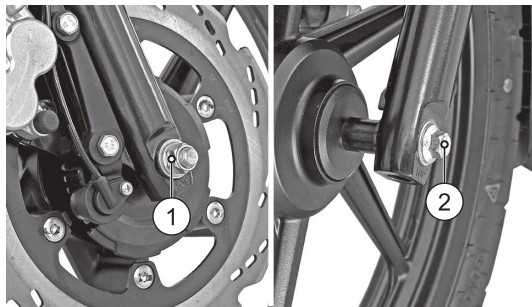
**Caution**

*Lubricate the drive chain after the motorcycle is washed with water or riding in rainy / wet condition.*

*The chain must be serviced more frequently when the vehicle is operated under severe conditions like dusty, muddy, wet, high speed or frequent starting / stopping.*

**FRONT WHEEL REMOVAL AND REASSEMBLY**

1. Remove the axle nut (1) along with a washer.
2. Pull out the axle (2) along with a washer.
3. Remove a spacer from the left side and toner ring cover from the right side of the wheel.



4. Place a support below the frame to prevent vehicle from falling and lift the vehicle up.
5. Carefully dislocate the disc from the caliper assembly and slide the wheel out.
6. Reverse the procedure for reassembling.

**Warning**

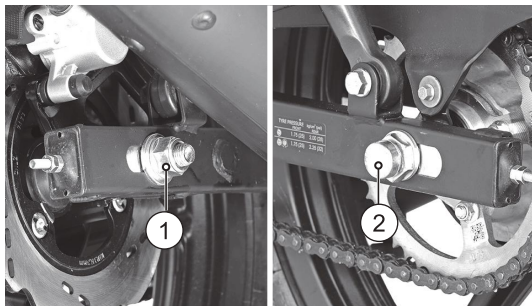
*Ensure proper seating of disc in the caliper assembly while reassembling the wheel.*

*Ensure to re-fix the spacer and toner ring cover at the respective sides of the wheel.*

*Keep the toner ring upwards whenever the wheel is removed in order to avoid damages to the toner ring. Damaged toner ring affects ABS function.*

## REAR WHEEL REMOVAL AND REASSEMBLY - DISCTYPE

1. Remove the axle nut (1) along with the washer and partially pull out the axle (2).
2. Take out the caliper assembly by dislocating it from the disc and the swing arm lug. Carefully hang the caliper assembly in the swing arm itself.
3. Take out the spacer and pull out the axle fully.
4. Remove the wheel assembly by gently tapping it along with the disc.
5. For locating and easy reassembly of the wheel, engage the gear. This will arrest the free movement of the drum sprocket.



6. Re-assemble the other parts in the reverse order of removal.



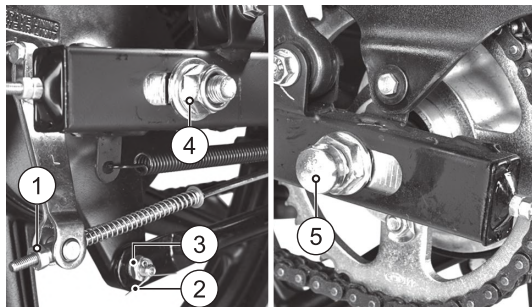
### Caution

*While assembling the caliper assembly ensure that the slot provided in the caliper is properly located to the lug provided in the swing arm assembly.*

*Always make sure that whenever the wheel is removed, axle nut is properly re-tightened to the specified torque and chain play is re checked and adjusted if required.*

## REAR WHEEL REMOVAL AND REASSEMBLY - DRUMTYPE

1. Remove the rear brake adjuster nut (1) and disconnect the brake rod.
2. Remove the split pin (2) and the nut (3) from the torque link mounting with the brake panel and disconnect the torque link.
3. Remove the axle nut (4).
4. Pull out the axle (5) and take out the spacer bush from the rear wheel assembly.
5. Tilt the vehicle to the left and take out the wheel assembly along with brake panel. Separate the brake panel from the wheel.



6. For locating and reassembling the rear wheel easily, engage the gear. This will arrest the free movement of the drum sprocket.
7. Reverse the procedure for reassembly.



### Caution

*Once the split pins are removed, replace them with new ones.*

## STORAGE PROCEDURES

For storage of your motorcycle for longer periods of over a month and above, we recommend to carry out the following steps:

1. Clean the vehicle thoroughly. Park the vehicle on centre stand.
2. Warm up the engine and drain engine cum transmission oil. Store the oil, if new, in a dust free container.
3. Empty the fuel tank.
4. Remove the spark plug and feed in several drops of engine cum transmission oil through the spark plug hole. Crank the engine few times and reinstall the spark plug.
5. Remove the battery, store it away from direct sunlight and freezing temperatures.
6. Place a suitable support at the bottom of the frame so that both the tyres are off the ground. This will ensure better tyre life.
7. Cover up the vehicle completely with a clean tarpaulin or any other suitable cover. Store the vehicle inside a garage or similar area to avoid damage due to dust and rain. Make sure that the storage area is well ventilated and free from any source of flame or spark.



### Caution

*Do not park the vehicle on a slope or soft ground or else it may fall.*

*During storage, the battery must be recharged on a constant current battery charger at recommended amperage atleast once in a month.*

## **TAKING THE VEHICLE OUT OF STORAGE FOR REGULAR USE**

1. Take the vehicle out of the garage and clean it thoroughly.
2. Remount the battery after bench charging if required.
3. Fill the engine cum transmission TVSTRU4 FULLY SYNTHETIC (SAE 10W30 API-SL, JASO MA2) oil and check the oil level using the gauge.
4. Lubricate the parts as instructed in the maintenance schedule.
5. Fill up fresh petrol in the fuel tank.
6. Check and inflate the tyres to the specified tyre pressure.
7. Check and correct the points mentioned in page No. 34.



### **Caution**

*Avoid using alkaline solution like detergent soaps for washing. This may damage head lamp and other lamp assemblies.*

*Turn the ignition switch to 'ON' position. Start the engine and allow it to idle for a few minutes and ride out.*

## **RECOMMENDED TIPS WHEN TAKING A LONG TRIP OF MORE THAN 500 KM**

- A) Please keep the following items for use in case of emergency :
1. Complete tool kit / first aid kit
  2. Recommended spark plug one number.
  3. Head lamp bulb and turn signal lamp bulb each one number.
  4. Throttle and clutch cables one number each.
- B) Precautions to be taken for the journey :
1. Ensure engine cum transmission oil and brake oil level are up to the mark.
  2. Adequate fuel in fuel tank.
- C) Check your motorcycle for the following :
1. Tightness of all bolts and nuts with correct torque value.
  2. Fitness of tyres / tyre pressure / tread depth.
  3. All bulbs, indicators and horn function.
  4. Check proper functioning of ABS (through ABS warning lamp)
  5. Smooth functioning of all cables and their free plays.
  6. Smoothness of steering operation.

7. Slackness and lubrication of chain (page No. 59).
8. Front / rear brake functioning and rear brake lamp switch adjustment.
9. Front fork for any abnormality.
10. Spark plug cleanliness and condition of spark plug.
11. Air filter element cleanliness.
12. Correct idling speed.
13. Lubrication of all items mentioned in the periodic maintenance schedule.
14. Intactness of EVAP system hoses and canister.
15. Any other job as necessary.
16. Have your vehicle checked at any TVS Motor Company Authorised Main Dealer / Authorised Dealer.

**Note**

*Ensure the first aid equipments are changed periodically based on the expiry.*

**Caution**

*Long journey are to be taken only after the running-in period of 1000 km.*

**TVS Motor Company Limited ('the Company') give this warranty with respect to the TVS Apache RTR 160 manufactured by the Company.**

While the Company has taken every care to maintain quality in the manufacture of the TVS Apache RTR 160, the above said warranty is subject to other terms of warranty:

During 5 Years from the date of purchase or during the first 60,000 km of run for the vehicle in the hands of original retail purchaser, whichever is earlier, the parts of the vehicle covered under warranty which prove to the satisfaction of the Company to have a manufacturing defect will be repaired or replaced free of cost.

The Company's obligation under this warranty is limited to repairing or replacing, free of cost, those parts of the vehicle which upon examination by the Company may prove to the Company's satisfaction to have a manufacturing defect, and in such cases the Company's decision either to repair or replace the affected parts will be final. In the event of replacement of parts, the Company also reserves the right to use parts of the same brand as the affected parts or any other brand which is used by the Company in the course of manufacture. All parts replaced under this warranty will become the property of the Company and must be returned to the company.

**Limitations of Warranty:**

This warranty shall not apply to following condition:

1. Any natural wear and tear, including without limitation, aging.
2. Warranty claims on proprietary items such as tyres, tubes and batteries etc., should be preferred by the user directly on the respective manufacturer, as per their warranty terms and the Company shall not be liable in any manner in respect to the same.
3. Parts repaired or replaced under this warranty are warranted only throughout the remainder of the original warranty period.
4. The Company is not liable for any delay in servicing due to reasons beyond the control of the Company or any of its Authorised Main Dealers / Authorised Dealers.





5. In any event, the Company is not liable for indirect, remote, incidental or consequential damages.
6. The Company may make any modification or improvement to vehicles in future production at any time without prior notice and without any obligation to install the same on vehicles previously dispatched for sale.
7. Any claim under this warranty will lie only when the customer :
  - takes his vehicle to an Authorised Main Dealer / Authorised Dealer of the Company and reports the problem he / she felt in the vehicle to enable the Authorised Main Dealer / Authorised Dealer to inspect the same and assess the cause for the reported problems.
  - produces to such Authorised Main Dealer / Authorised Dealer the Service Handbook for the concerned vehicle for verification of relevant details.
8. This is the only warranty given by the Company for the TVS Apache RTR 160. No employee, Dealer or other person is authorised to extend or enlarge this warranty.

### **Warning**

*Modifications to this vehicle not approved by the TVS Motor Company may cause loss of performance and render it unsafe for use and disqualifies for warranty coverage also.*

**Following Toll Free numbers can be contacted for battery related queries if any.**

**Incase of EXIDE battery, call :- 1800 103 5454**

**Incase of AMCO battery, call :- 1800 425 0096**

**Incase of TATA GREEN battery, call :- 1800 419 8888**

**Incase of AMARON battery, call :- 1800 425 5858**

## List of parts not covered under warranty

| ITEM                           | WHAT TO CHECK FOR                                                                                                                                                                                                                              |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Normal Maintenance operations  | Engine tune-up, decarbonizing, fuel system cleaning, oil changes, head light focusing, fastener retightening, ignition timing, clutch and brakes as well as other normal adjustments.                                                          |
| Wear & tear items              | Chain, sprockets, clutch and brake linings, fasteners, shims, washers, oil seals, gaskets, O' rings and spokes etc.                                                                                                                            |
| Electrical                     | Bulbs , fuse, AHO                                                                                                                                                                                                                              |
| Service Maintenance Parts      | Oil filters, spark plug, air filter, SAI filter, oil and brake fluid                                                                                                                                                                           |
| Rubber, rexine & plastic items | All hoses , pipes and plastic aesthetics                                                                                                                                                                                                       |
| Proprietary Items              | Battery, tyres and tubes (the warranty terms are subject to our agreement with proprietary OEM)                                                                                                                                                |
| Others Factors                 | Parts of the vehicle getting affected due to atmospheric effect / environmental factors (rusting, paint peel off etc.). However, depending on the vehicle usage condition, warranty would be accepted up to 2 years from the date of purchase. |
|                                | Parts of the vehicle which have been tampered with, altered, repaired or replaced by persons not authorised by the Company and which in the sole judgement of the Company affect the performance of the vehicle.                               |
|                                | Parts which are used in conjunction with parts not made or recommended by the Company.                                                                                                                                                         |

## List of parts not covered under warranty

| ITEM           | WHAT TO CHECK FOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Others Factors | Parts suffering damage or resultant damage by accident, misuse, negligent treatment, use of bad quality lubricants or impure fuel or by omission to follow the guidance and instructions contained in this owner's manual.                                                                                                                                                                                                                                                                                                                 |
|                | Vehicles on which engine number or chassis number is deleted, defaced or altered.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                | Vehicles on which any warranty service including scheduled paid service is not availed when it falls due (at TVS Motor Company Authorised Main Dealer / Authorised Dealer).                                                                                                                                                                                                                                                                                                                                                                |
|                | <p>Vehicles sold or transferred by original retail purchaser.</p> <p>Vehicles used for racing or any competition or used otherwise than for ordinary personal transportation. Vehicles attached with side cars etc.</p> <p>Vehicles which have been taken out of India.</p> <p>Vehicles affected by natural calamities like flood, earthquake, tsunami, storm etc.,</p> <p>If the vehicle has been used for commercial purpose like taxi or used for rental or hiring or any other purpose other than regular personal transportation.</p> |

### SERVICE INFORMATION

There are twenty one services for TVS Apache RTR 160 during warranty period. Of these, the first five are free services for which labour charges are free. In addition to these five free services, we have a scheme of sixteen pay services. For keeping the maintenance track of your vehicle, free and pay service record sheets are attached in the Service Handbook given to you during the time of your vehicle purchase. Please have the relevant record sheet filled by the Dealer who is carrying out the maintenance service.

For availing any of the twenty one warranty services, please take your vehicle and your Service Handbook to any of our Authorised Main Dealers or any of our Authorised Dealer. After effecting the service, the Authorised Main Dealer or the Authorised Dealer will affix their stamp on the last column of free or pay service record sheet of Service Handbook for your record and reference.

Periodic maintenance always helps good performance of an automobile and our services are planned to keep your TVS Apache RTR 160 performing good. **Please note that carrying out the service for your vehicle at scheduled intervals at any of the TVS Motor Company Authorised Main Dealer / Authorised Dealer is necessary for availing of warranty.** And please also remember that, after the services are over, periodic servicing of your vehicle at appropriate intervals, depending upon its extent of use, will keep your vehicle at its best level of performance.

In case you need any clarification or assistance, please feel free to write to us mentioning the frame number, engine number and the date of purchase of your vehicle also the name and place of the Authorised Main Dealer / Authorised Dealer from whom you bought the vehicle and getting it serviced.

#### Service Department

**TVS MOTOR COMPANY LIMITED**

**P.O.Box No. 4, Harita, Hosur - 635 109,**

**TAMILNADU, INDIA.**

**Toll free no. :- 1800-258-7111**





**Drive In.**



**Drive Out.**

**Say bye-bye to waiting time  
for servicing your bike.**

**Get your vehicle serviced in 1 hour at no additional cost. Contact your nearest Dealership for details.<sup>†</sup>**

<sup>†</sup>Facility available at selected Dealerships only. Terms and conditions apply



# Busy Life? Easy Servicing!

**Now, service your bike anywhere, anytime.**

- ★ Service the vehicle at your door step.
- ★ Available for regular maintenance or breakdown service only.
- ★ Offered at nominal convenience charges.

**Contact your nearest Dealership for details.<sup>†</sup>**

<sup>†</sup>Facility available at selected Dealerships only. Terms and conditions apply



**TVS**   
**geared  
to care**

*Pickup &  
Drop*

# Busy Life? Easy Servicing!

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<sup>†</sup>Facility available at selected Dealerships only. Terms and conditions apply

## TECHNICAL SPECIFICATIONS



**MANUFACTURER** : TVS MOTOR COMPANY LIMITED  
P.B. No1, Bythahalli, Kadakola post, Mysore - 571 311, India.

### ENGINE

Type : Single cylinder, 4 stroke, fuel injection, air cooled, OHC engine  
Cylinder bore : 62 mm  
Stroke : 52.9 mm  
Piston displacement : 159.7 cm<sup>3</sup>  
Compression ratio : 10.0 : 1  
Air filter : Viscous paper filter  
Oil filter : Wire mesh and micronic paper filter  
Lubrication system : Forced wet sump  
Maximum power in kW : 11.42 @ 8400 rpm  
Maximum torque in Nm: 13.9 @ 7000 rpm  
Maximum speed : Around 107 km/h  
Engine idling rpm\* : 1500 ± 200 rpm  
Starting system : Electric starter  
Emission norms : BS VI

### TRANSMISSION

Clutch : Wet - multiplate type  
Gear shift pattern : 1 down and 4 up  
Primary transmission : Helical gears  
Secondary transmission : Chain and sprockets

### GEAR RATIOS

I gear : 2.917  
II gear : 1.857  
III gear : 1.333  
IV gear : 1.050  
V gear : 0.880  
Primary reduction : 3.095  
Final reduction : 3.385

\* Under warm condition





## CHASSIS

|                                            |                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------|
| Overall length                             | : 2085 mm                                                                         |
| Overall width                              | : 730 mm                                                                          |
| Overall height                             | : 1105 mm                                                                         |
| Seat height                                | : 790 mm                                                                          |
| Ground clearance                           | : 180 mm (unladen)                                                                |
| Wheel base                                 | : 1300 mm                                                                         |
| Kerb weight (with toolkit and 90% of fuel) | : 140 kg (Disc brake version) /<br>139 kg (Rear Drum brake version)               |
| Pay load                                   | : 130 kg                                                                          |
| Maximum laden weight                       | : 270 kg (Disc brake version) /<br>269 kg (Rear Drum brake version)               |
| Steering angle                             | : 36° (both sides)                                                                |
| Caster angle                               | : 26°                                                                             |
| Frame                                      | : Double Cradle Synchro STIFF                                                     |
| Front suspension                           | : Telescopic oil damped                                                           |
| Rear suspension                            | : Monotue inverted gas filled 5 step adjustable shocks with rectangular swing arm |
| Trail length                               | : 81.3 mm                                                                         |

## TYRE\*

### Tyre size

|       |                          |
|-------|--------------------------|
| Front | : 90/90-17 49P Tubeless  |
| Rear  | : 110/80-17 57P Tubeless |

### Tyre pressure

|             |                                    |
|-------------|------------------------------------|
| Front       | : 1.75 kg/cm <sup>2</sup> (25 psi) |
| Rear - solo | : 2.00 kg/cm <sup>2</sup> (28 psi) |
| Rear - dual | : 2.25 kg/cm <sup>2</sup> (32 psi) |

## BRAKES

|       |                                                                                                                        |
|-------|------------------------------------------------------------------------------------------------------------------------|
| Front | : Hand operated, 270 mm petal disc                                                                                     |
| Rear  | : Foot operated, 200 mm petal disc<br>(Disc Brake version) /<br>Foot operated, 130 mm dia drum<br>(Drum Brake version) |

**\* The pneumatic tyres fitted in this vehicle meet the requirements specified by BIS and comply with the requirements under the Central Motor Vehicles Rules (CMVR), 1989.**

## ELECTRICAL

|                   |                                   |
|-------------------|-----------------------------------|
| Type              | : AC generator                    |
| Ignition system   | : ECU - 3D Ignition timing map    |
| Spark plug        | : BOSCH - UR6DE                   |
| Battery type      | : 12V, 8 Ah                       |
| Generator         | : Fly wheel magneto 12V, 300W     |
| Head lamp         | : Halogen HS 12V, 35/35W x 1      |
| Position lamp     | : LED lamps (12V, 3W x 2)         |
| Tail / brake lamp | : LED lamps (0.5W max / 3.5W max) |
| Turn signal lamp  | : 12V, 10W x 4                    |
| Number plate lamp | : 12V, 5W x 1                     |
| Instrument panel  | : LCD / LED indicators            |
| Horn              | : 12V, DC x 2                     |
| Fuse              | : 12V, 25A x 1 (Main fuse)        |
|                   | : 12V, 10A x 1 (ABS fuse)         |
|                   | : 12V, 10A x 1 (EMS fuse)         |
|                   | : 12V, 15A x 1 (DC load fuse)     |
|                   | : 12V, 5A x 1 (ABS fuse)          |



## Caution

Using the bulb other than the specified rating can result in overloading of the electrical system or premature failure of the bulb.

## CAPACITIES

|                                       |                                                                  |
|---------------------------------------|------------------------------------------------------------------|
| Fuel tank capacity <sup>#</sup>       | : 12 l (including reserve)                                       |
| Fuel                                  | : <b>BS VI / Unleaded Petrol with minimum RON 91</b>             |
| Engine cum transmission: oil grade    | : TVS TRU4 FULLY SYNTHETIC oil (SAE 10W30 API-SL, JASO MA2)      |
| Engine cum transmission: oil capacity | : 1000 ml (after draining)<br>1100 ml (after disassembly)        |
| Front fork oil grade                  | : IOC teleshockab oil                                            |
| Front fork oil capacity               | : 140 ± 2 ml / leg (Gabriel make)<br>152 ± 2 ml / leg (Top make) |
| Brake fluid                           | : TVS Girling DOT 3 / DOT 4                                      |



## Note

*Specifications are subject to change without notice.*

<sup>#</sup> The fuel tank is not a measuring instrument and the capacity of fuel tank may slightly vary from the indicated capacity.

## GENERAL INFORMATION



Dear Customer,

It is mandatory under the Motor Vehicles Act to insure all motor vehicles. No motor vehicle can be used in a public place without a valid policy of insurance issued by an authorised insurer. Driving a motor vehicle without any such insurance is an offence under Motor Vehicles Act.

To assist our Customers on their insurance requirements such as the prompt issue and renewal of policies as well as expeditious settlement of claims if any, our preferred insurers are:







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Telephone: +91 (4344) 276780. Fax: +91 (4344) 276878 / 277311 [www.tvsapache.com](http://www.tvsapache.com)