

The inspection of the electronic ignition advance control varies from vehicle to vehicle. Please refer to the repair manual.

## VIII. Trouble shooting of the timing lamp

If the timing light doesn't work or work abnormally, inspect the following items:

**8-1** Make sure that the connection between the battery jar clip of the timing light and the battery jar is reliable.

**8-2** Make sure that the polarity connection between the battery jar clip of the timing light and the battery jar is correct (the red clip should be connected to the anode “+”, and the black clip should be connected to the cathode “-”).

**8-3** Make sure that the surface of the up/down ferrite magnetic block in the inductive signal pickup device is clean. If necessary, clean the ferrite magnetic block according to the section of the timing light maintenance and points for attention.

**8-4** Make sure that the inductive signal pickup device is correctly connected to the high voltage wire of cylinder 1.

**8-5** Make sure that the spark plug of cylinder 1 works normally.

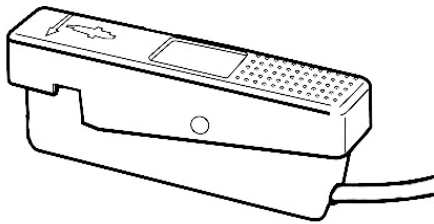
**8-6** Connect the inductive signal pickup device to the high voltage wire of the other cylinder 1, press the flash frequency light, if the timing light flashes, check the spark plug of the cylinder 1, and then conduct the following work.

**Note:** Anything wrong with the low ignition voltage of the spark plug and the high voltage wire can result in the abnormal operation of the timing light. Clamp the inductive signal pickup device at other places of the high voltage wire to see if things will change. The electromagnetic wave produced by some ignition systems and special high voltage wires (solid wire core high voltage wire, high voltage wire of racing vehicle, high voltage wire of off road vehicle) is higher than EMI and RFI standards, thus the testing equipment can not work normally. Contact relative manufacturers to learn the correct test requirement.

## IX. Points for attention and maintenance

### Clean the inductive signal pickup device

If the surface of the inductive signal pickup device is dirty or has oil stain, the timing light may work abnormally. Clean the working surface of the inductive signal pickup device at regular intervals. (see Fig. 6)

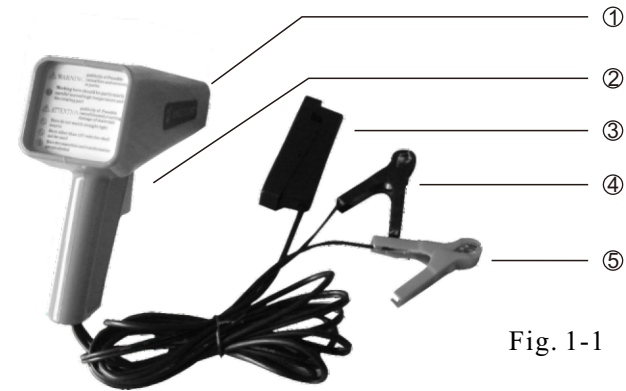


Clean the contact surface

**Fig. 6 Clean the inductive signal pickup device**

# User Manual for Timing Light

## I. Introduction Picture for all Parts of the Timing Light



**Fig. 1-1**

1. Xenon lamp (light the timing mark during checking the timing)
2. Flash frequency light switch (press this switch, the flash frequency light begins to flash, when loosen, the flash stops)
3. Inductive signal pickup device (connect high voltage wire of cylinder 1)
4. Black battery jar clip (connect the battery cathode “-”)
5. Red battery jar clip (connect the battery anode “+”)

## II. Preparation before the use of the timing light

**2-1** Before any test, check carefully and eliminate all mechanical trouble. Loose connection or damage of the pipe, wire, and connector will result in abnormal operation of the engine.

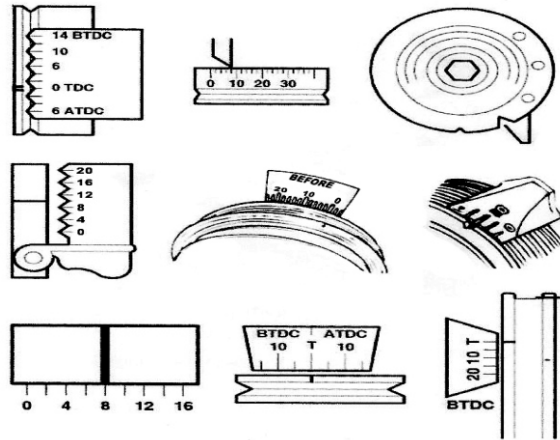
**2-2** Follow the repair manual, check whether the vacuum pipeline, wire, and wire bunch connector are correctly connected, then check the following parts:  
all liquid level  
spark plug and high voltage wire of the spark plug  
air filter  
vacuum pipeline  
belt  
circuit  
circuit connector

**2-3** Check the preparation of the ignition timing engine:

**2-3-1** Before checking the ignition timing, make preparations of the engine, check the discharge control plate of this vehicle or the test procedure and technical requirement for the ignition timing in the repair manual. The discharge control plate of the vehicle is inside the engine chamber, the usual position is: the back of the engine hood, the engine bulkhead, the top of the valve chamber cover or near the engine hood lock.

**2-3-2** Make the following preparations at least:

Find the timing scale and the position of the indicator. The timing scale and the indicator are usually at the crank pulley, crankshaft vibration damper (at the front of the engine) or the flywheel (between the engine and the transmission), etc. (see Fig. 2)



The timing scale and the indicator should be clean and clear. Apply chalk dust on them if necessary. All the spark plugs work normally, the gap between the electrodes is correct. Start the engine, run to the normal working temperature. Shut down the engine before connecting the timing light.

### III. Connecting the timing light

In order to ensure safety and reliable operation of the timing light, connect according to the following steps:

Warning: keep hand, timing light, connecting wire and the signal pickup device away from the running parts and the high temperature surface of the engine. No smoking.

**3-1** Close the ignition switch. Never connect the timing light when the engine is running or the ignition switch is turned on.

**3-2** Clip the inductive signal pickup device to the high voltage wire of cylinder 1.(See Fig 3) Make sure that the signal pickup device doesn't touch the discharge branch pipe or other parts of the engine, as temperature on these parts can be very high when the engine is running, which may damage the signal pickup device.

**3-3** Clamp the battery jar clip at the battery jar inside the vehicle.

The red clip connects the anode (+)  
The black clip connects the cathode (-)

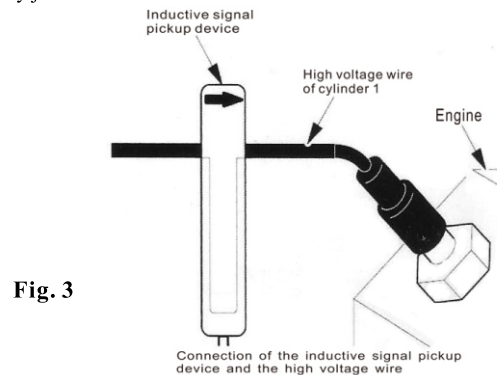


Fig. 3

### IV. Inspection of the basic ignition timing

**Note:** For some systems, before checking or adjusting the ignition time according to instructions, some special elements should be unplugged, jump connected or grounded. If it's not done according to instructions, the checked or adjusted ignition time will not be correct.

**4-1** Make sure that the timing light is correctly connected according to the above requirement.

**4-2** Make sure the preparations of the engine have been made according to the above requirement.

**4-3** Start the engine, run to the normal working temperature.

**4-4** If needed, adjust the idle speed according to the factory's requirement.

**4-5** Make sure that the ignition advance angle indicated on the timing light is zero. If not, press the increase/decrease button of the advance angle, to make the display of the advance angle “zero”. (This applies to timing light; Model A doesn't need this step.)

**4-6** Observe the relative position between the timing scale and the indicator (see Fig 4): compare the displayed timing degrees with the specified value, if the timing degrees are within the allowed range(usually  $\pm 2$  degrees), then, the ignition timing is normal. If the degrees exceed the range, it's likely that some parts need to be replaced or the timing needs to be adjusted.

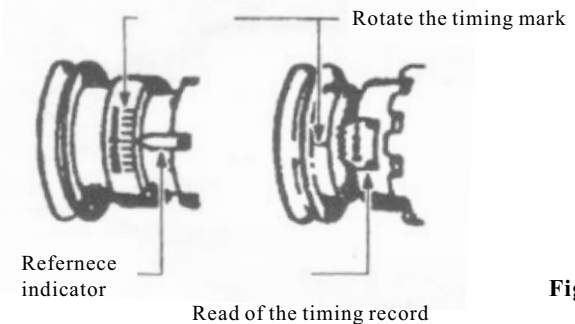


Fig. 4

**4-7** Loose the flash switch, turn off the flash light.

**4-8** Turn off the ignition switch, take down the timing light.

**Note:** If the timing light doesn't work or works abnormally, please refer to the “trouble-elimination” section of this manual, check the possible causes.

### V. Adjustment of the ignition timing

Adjust the ignition timing according to the adjustment procedure and technical requirement according to the repair manual. Never try to adjust the ignition timing when one is not sure of the adjustment procedure and technical requirement.

### VI. Inspection of the control part of the ignition advance

The control of the ignition advance is to guarantee that the ignition system can ignite at the appropriate time during the compression stroke. The control of the ignition advance includes: mechanical advance control, vacuum advance control, and electronic advance control, etc.

**Note:** The inspection methods of the vehicle's ignition advance vary greatly. The following mentioned method is the general method to inspect mechanical/centrifugal type ignition advance. When checking the ignition advancing angle, one should confirm that the reference ignition time and the closing angle are correct. Refer to the repair manual to understand correct inspection procedure and technical requirement. Make sure that all the safety rules are observed.

### VII. Inspection of the electronic ignition advance