MSSRS01

SRS BOSCH AB 8.4 (AIRBAG) TRAINING BOARD

https://autoedu.lt/

https://bads.lt/

https://automotivetrainingequipment.com/

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CONTENTS

1. SAFETY REQUIREMENTS

Attention:

Before using the training board, take a look at the user manual.

Training equipment may only be used for the training purposes specified in the instructions.

The staff conducting the training (lecturer, teacher, instructor and others) must be familiar with the instructions for the training equipment, know the methods and principles of use, settings, control of the equipment, be able to switch off (stop) the training equipment in an emergency.

The training staff (lecturer, teacher, instructor and others) acquaint those working and learning with the training equipment with the work safety requirements.

When working with high voltage systems (hybrid power plants and electric vehicles), it is mandatory to comply with electrical safety requirements and use personal protective equipment against electric shock.

It is forbidden to work with educational equipment for children, unqualified staff.

It is forbidden to work with training equipment for persons under the influence of alcohol or other psychotropic substances.

It is forbidden for people who do not have the appropriate qualifications to open the electrical input boxes, connect or change anything there.

It is prohibited to improve, modify or otherwise change the design of training equipment without the written consent of the manufacturer.

Do not ignore the information on possible dangers provided by the warning signs on the training equipment. Beware of the hazards indicated on the warning signs.

The training equipment must be switched off completely during cleaning work.

It is forbidden to wash the training equipment with running water or any chemical cleaning agents.

It is forbidden to clean the electronic components of the training equipment with damp cloths.

The equipment must be completely switched off during maintenance and repair work on the training equipment.

It is forbidden to disconnect the power cords of the electrical elements of the training equipment. Careless or repeated disconnection of these wires will result in damage to the connectors and loss of contact. The desired electrical measurements can be performed at specially designed and installed banana-type connectors in the training equipment. Banana type connectors are resistant to multiple joints.

Before working with training equipment, check that:

- Equipment is not mechanically damaged, broken;
- All protective shields are assembled;
- All components (e.g., wires, jumpers, fuses, handles, etc.) are available;
- The equipment components are free of foreign bodies;
- Undamaged power cords;
- Neat power supplies (battery or stand power supply);
- Power supplies are properly connected (e.g., battery terminals are screwed on, polarity is not mixed, proper power supply is used according to local electrical installation standards);
- The training equipment is properly constructed and locked (e.g., the equipment is placed on a sufficiently solid base, the transport wheels are locked);
- During operation, the equipment will not pose any danger to those working with it and the surrounding staff;
- There are other factors not specified in the instructions that may endanger the health of personnel working with the equipment and others.

Observe during work with the equipment:

- The noise emitted by the equipment is characteristic of such a work process (no extraneous sounds);
- Odour of glowing, burning objects;
- Power supplies are working properly;
- There are no factors or processes other than those specified in the instructions that could endanger the health of personnel working with the equipment or other persons.

2. GENERAL INFORMATION

2.1. Purpose of training equipment

Teaching equipment for educational activities. It is a visual tool for explaining and demonstrating the structure and operation of various automotive parts, assemblies, structures, systems. The equipment is used as a teaching and learning tool for monitoring and analysis of various car systems work processes. It is possible to perform various measurements of the system installed in the training equipment, parameters of ongoing processes, to perform fault simulations, to diagnose. A variety of laboratory tasks can be performed using the training equipment. The equipment is designed and manufactured in order to provide learners with the clearest and most convenient information about the structure of the unit, the composition of the system and the principle of operation.

The training equipment is intended for demonstration, training and learning of the design and construction of the SRS Bosch 8.4 Airbag system.

2.2. Training equipment parameters

Length	1360 mm;
Width	500 mm;
Height	1820 mm;
Weight	~ 60 kg;
Power supply	12 V battery

2.3. Transport and storage conditions

Training equipment is installed in a dedicated box. Do not overturn or lay the equipment during transport. During transport, the equipment must be protected from falling, tipping, shocks, humidity, temperature, vibration.

Put the training equipment only on a suitable, solid base (table, cupboard).

Export or import procedures must take into account the legislation in force between the countries. Import export procedures and various taxes apply to various technical fluids, oils, batteries, tires and more.

Training equipment must be stored in a room with a minimum ambient temperature of at least +10 ° C. Relative humidity not more than 60 %.

Training equipment must not be exposed to direct sunlight. Equipment must be covered by protective equipment if it is stored in a place exposed to direct sunlight.

Unused training equipment is kept completely switched off. The training stands are switched off with the control key and by disconnecting the power supply.

2.4. Preparation and use of equipment

The training equipment is maintained as conventional mechanical, hydraulic, pneumatic, electrical machines and systems. Training equipment requires minimal maintenance and service.

All components of the training equipment must be controlled and ensured.

Damaged, broken parts, blown fuses, damaged connecting cables and other parts are replaced with new ones.

The technical condition of the equipment, attachment of protective shields, complete set and other things are checked. For more information on safe work requirements, see the section "Occupational safety → Before working with the training equipment, check that:".

When preparing training equipment for work, it must be properly constructed and secured. Equipment with its own stand or chassis is built on a level and solid floor. The equipment transport wheels are locked by locking the brakes.

A charged 12 V battery is connected before working with the training equipment.

The training equipment is activated by a switch, ignition key (depending on the type and equipment of the training equipment).

2.5. Energy sources

The power source is a 12 V battery.

The 12 V battery must comply with the technical conditions of the training equipment: battery terminal arrangement, capacity (Ah), starting current (A), size (length (mm), width (mm), height (mm)).

When working with training equipment that is powered by a 12 V battery, disconnect the battery charger. The charger can emit electromagnetic noise that affects the operation of the training equipment and can be recorded by sensitive measuring devices (oscilloscope).

Attention:

When connecting the 12 V battery to the stand, the control key and all other users must be turned off. First connect the "+" battery contact (terminal) and tighten. Then connect the "-" battery contact (terminal) and tighten.

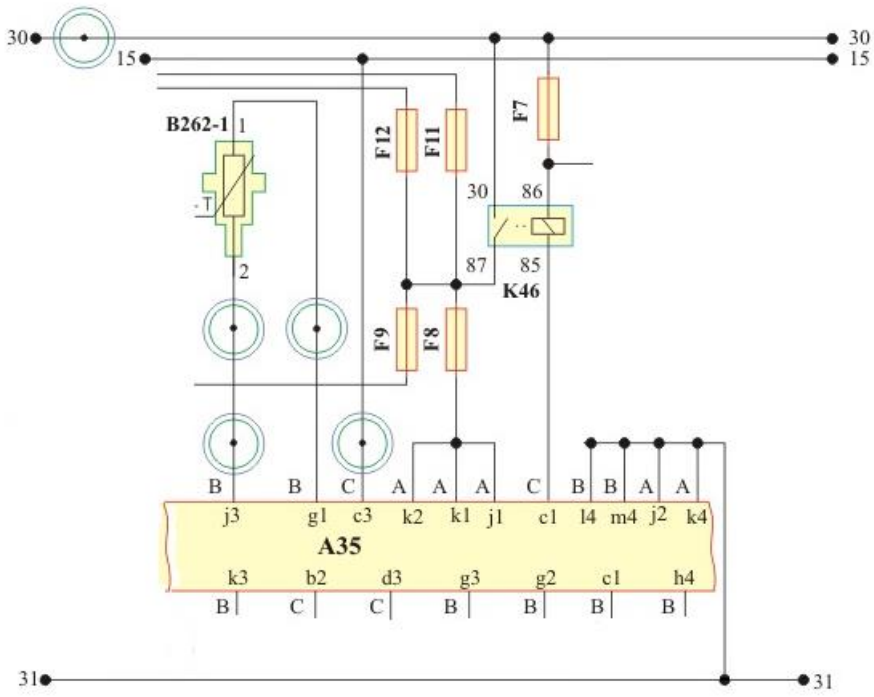
When disconnecting the 12 V battery from the stand, the stand must be turned off. First release and disconnect the "-" battery contact, then release and disconnect the "+" battery contact.

Attention:

Do not confuse the polarity of the wires to the 12 V battery. The "+" (positive) and "-" (negative) contacts (terminals) are marked on the battery and on the cable connections. The cable contact marked with a "+" (positive) sign (cable insulation colour red) is connected to the battery contact marked with a "+" (positive) sign. The cord contact marked with a “-” (negative) mark (cord insulation colour black) is connected to the battery terminal marked with a “-” mark (negative).

2.6. Symbols and markings

Automotive symbols for marking wiring diagrams and components are used in the training equipment. The figure below shows an example of component marking in a wiring diagram.



Example of wiring diagram and component marking.

Marking of wiring diagrams:

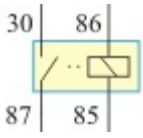
Black line connecting wires;

the wires are connected to each other;

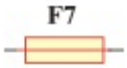
30 a numbered wire is an electrical circuit having a constant voltage of +12 V from a battery;

15 the numbered wire is an electrical circuit in which a +12 V DC voltage is turned on by the ignition key;

31 is the electrical circuit connected to the car body and the negative terminal of the battery (ground ⏚);

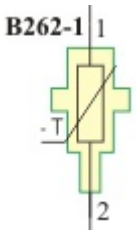


4-pin relay. Numbers 86 and 85 denote the contact numbers on the relay through which the relay electromagnet connecting contacts 30 and 87 is controlled. Numbers 30 and 87 denote contact numbers through which a current of 30 A (or greater) may be transmitted;



Fuse. Fuse marking symbol. In the circuit it is an F7 fuse.

A35 vehicle system (unit) control unit (computer) (e.g., engine control unit, airbag control unit, brake ABS control control unit or other). The letters A, B, C denote the connection used to connect the electrical wiring to the control computer. The symbols g1, c3, k2, b2, d3 denote the contact of the control unit connector.



B262-1 Temperature Sensor 1. Numbers 1, 2 temperature sensors contact numbers.

A 4 (2) mm banana was installed in the training equipment and connected to that cable. connector (socket) for connecting measuring equipment or a jumper.

Two banana connectors (sockets) are mounted on the cable for connecting the jumper. A jumper removed from the connectors breaks the circuit of this wire. Electric current cannot flow. The wiring diagram of the stand does not show this disconnection of the cord, because in real cars banana connectors are not installed. These connections are installed in the electrical circuit of the training equipment, enabling measurements to be made and faults to be simulated.

Jumper. Connector with 2 banana type 4 (2) mm contacts (plugs) at the bottom and one banana type 4 (2) mm contact (socket) at the top. All three contacts inside the jumper are connected to each other.

Attention:

It is recommended to connect measuring wires with 4 (2) mm banana type contacts (plugs) to the training equipment when performing various measurements of electrical parameters.

2.7. Preparation and use of equipment

When preparing training equipment for work, it must be properly constructed and secured. Equipment with a chassis, built on a level and solid floor. The equipment transport wheels are locked by locking the brakes.

A suitable, charged 12 V battery is connected before working with the training equipment.

The position of the emergency stop switch is checked. If the training equipment has been stopped in an emergency, the emergency stop switch will remain depressed and the equipment will not start. When the emergency stop switch is unlocked, it pops out when its upper part is turned clockwise (the upper part moves to the right).

Emergency stop switch

If the emergency stop switch needs to be used, it is pressed with your finger or palm. There is no need to turn anything.

The training equipment is activated by main on-off button and ignition key.

Ignition key

The training equipment is equipped with a light indication, in which a yellow LED (PWR) indicates that the equipment is connected to the power supply, a red LED (ON) - the equipment is started and running.

Equipment with ignition key, operated in the same way as a normal car. In the middle position, the training equipment is switched off. In the first locked position, turning the key to the right turns on the ignition. Turning the key further to the right (position without locking) activates the starter. The key rotation to the left from central position has got fixed position which does not have perform any function

Training equipment is made for the study and demonstration of SRS system parts, structure, construction, operation.

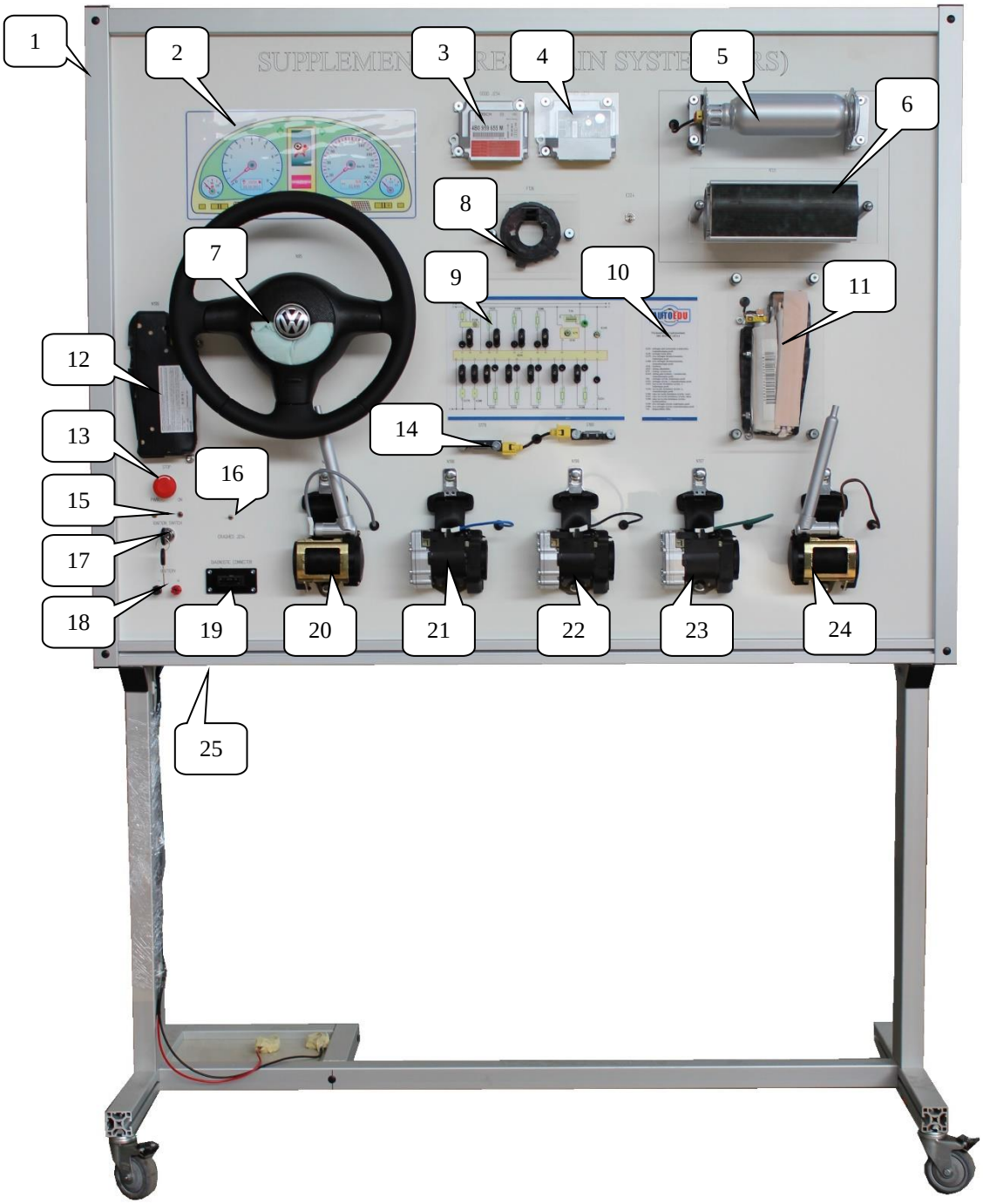
With the help of system scanners, written fault codes / messages can be found in the control computer memory. These codes / messages are stored in the memory when the sensor, the actuator, the wire is broken, the contacts are lost, the jumper is removed from the circuit. All fault codes can be deleted from the control computer memory using system scanners. Fault codes are stored in the memory, for example: when the jumper is disconnected when the training equipment is switched on, due to voltage fluctuations and other real or simulated malfunctions. As in cars, errors can only be cleared from the control computer's memory when the fault has been physically rectified (e.g., jumper inserted, cable connected, faulty sensor replaced, etc.).

Switch for electronic control units is used to switch on the required control unit. The stand is equipped with one clean control unit. An accident has been recorded in the next control unit. The switch selects which control unit is to be visible with the diagnostic equipment. The required control unit must be selected with a switch before switching on the stand power supply.

3. TRAINING EQUIPMENT

3.1. General overview of training equipment

A general view and structure of the training equipment is given in the illustrations below.



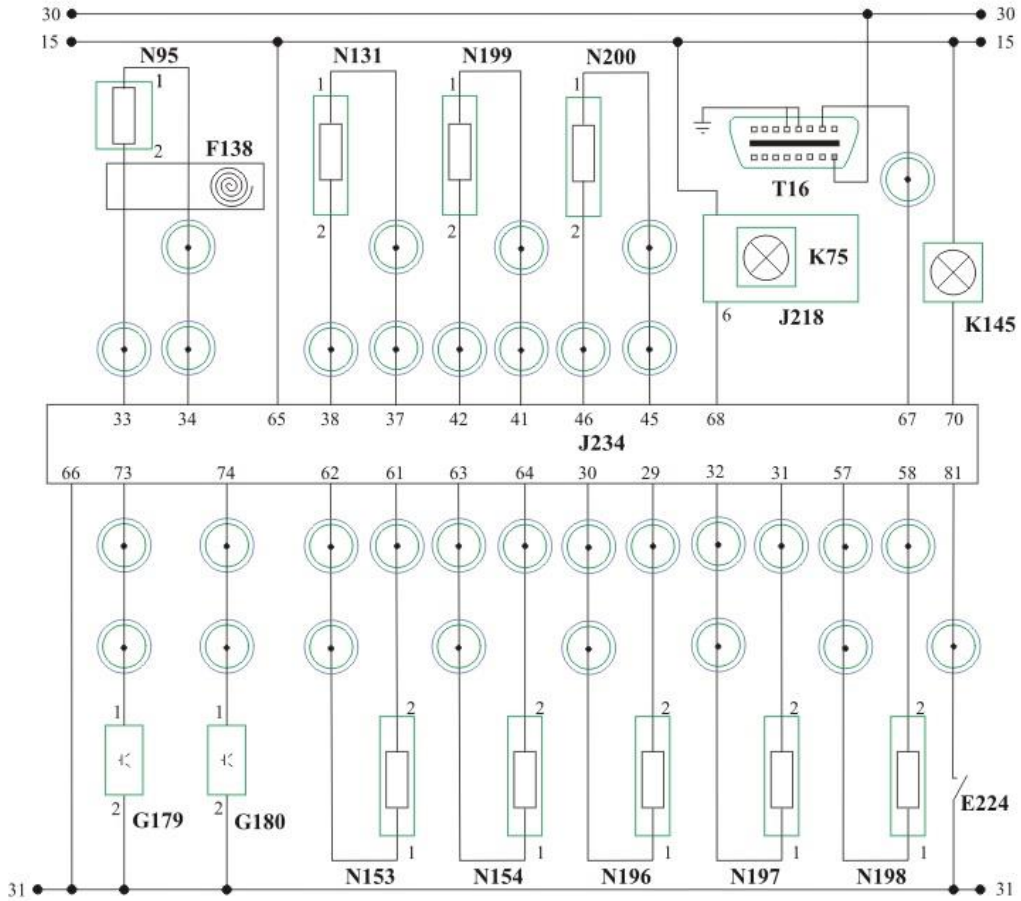
General view of the SRS training stand

1 Frame
2 Dashboard
3 Electronic control unit (ECU)
4 Electronic control unit (ECU) with crash data

5 Passenger’s front side airbag igniter
6 Passenger’s front side airbag
7 Driver’s SRS airbag
8 Airbag spiral cable
9 Electrical diagram
10 Legend
11 Passenger’s side airbag,
12 Driver’s SRS side airbag
13 STOP button
14 Left and right crash sensors
15 Stand status indicators
16 Switch for electronic control units
17 Ignition switch with key
18 12 V contacts
19 OBD diagnostic connector
20 Belt tensioner igniter 1, driver’s side
21 Rear belt tensioner igniter, driver’s side
22 Rear belt tensioner igniter, centre
23 Rear belt tensioner igniter, front passenger’s side
24 Belt tensioner igniter 2, front passenger’s side
25 Fuse

3.2. Electric scheme

The wiring diagram contains all the elements: sensors, actuator components, data transmission lines, diagnostic connection. This diagram shows the connection circuits of the elements, the connection contact numbers, the component numbers, the mounting locations of the jumpers.



Electrical diagram of the SRS Airbag system

3.3. Legend

N95	Airbag igniter, driver's side
N131	Airbag igniter 1, front passenger's side
N199	Side airbag igniter, driver's side
N200	Side airbag igniter, front passenger's side
J234	SRS Bosch AB ECU
F138	Airbag coil connector (spiral cable)
G179	Left side airbag crash sensor, driver's side
G180	Right side airbag crash sensor, front passenger's side
J218	Dash panel
N153	Belt tensioner igniter 1, driver's side
N154	Belt tensioner igniter 2, front passenger's side
N197	Rear belt tensioner igniter, front passenger's side
N198	Rear belt tensioner igniter, centre
N196	Rear belt tensioner igniter, driver's side
K75	Airbag warning lamp
E224	Airbag deactivation switch, front passenger's side
K145	Airbag deactivation warning lamp, front passenger's side
T16	OBD diagnostic connector

4. WARRANTY CONDITIONS

Our products meet modern technical standards. We guarantee that our product is perfectly constructed and manufactured. They operate reliably if used correctly and in accordance with the provided maintenance rules.

Educational training board is used for educational purposes and can be used only with the components and operating fluids that are fitted on the board.

The guarantee of ____ months is provided for the educational training board. The guarantee begins to run from the sale date of the stand.

In order to warrant the setting of the appropriate date of sale, we ask the buyer to save the relevant contract documents: purchase check, invoice, transfer-acceptance act, warranty card with a product name filled correctly and clearly, number, date of sale, store stamp, signature and the signature of the seller.

The warranty is not applied:

- if the user did not comply with the usage, transportation and storage conditions, used not appropriate operating fluids and aggressive cleaning agents;
- if the stand was damaged by the third parties, force majeure (fire, catastrophe etc.) or another side effect;
- for mechanical breakings and other breaches;
- for warn out parts of the stand, fuses and if non-original spare parts are used;
- when the stand is regulated, improved or remade by unauthorized persons who cannot carry out this work;
- for naturally worn parts such as collars, straps and filters;
- in case of the fluid spill;
- when using the incomplete kit;
- if extraneous objects or some water gets into the product;
- when operating incorrectly or plugging into a messy electric network.

Warranty conditions do not cover the costs related with dismantlement of the product and transportation to the authorized warranty service enterprise. Also, it does not cover consultation, actuation and adjustment work costs. If the elements necessary for repairing the board have to be ordered from the supplier, the repair work may be prolonged.

Warranty repair is done at technical service stations authorized by the manufacturer. During the warranty period defective product components are repaired or replaced free of charge. Technical service station has the right to make a decision about the repair or replacement of the components. The elements that are being changed become the property of the service station.

After completion of the warranty repairs, the guarantee is not extended but remains valid until the time limit provided. The manufacturer reserves the right to change the appearance, design and structure of the product. Service center has the right to suspend the guarantee if the stand was used for other purposes.

Warranty maintenance coupon

Name	_____
Product number	
Date of sale	
Training equipment owner	_____
Trading partner / representative	_____

Description of work performed

Data	Description of the fault and its elimination process	Technician / Signature
	_____ _____ _____ _____ _____	
	_____ _____ _____ _____ _____	
	_____ _____ _____ _____ _____	
	_____ _____ _____ _____ _____	
	_____ _____ _____ _____ _____	

NOTES

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