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## Autóhifi berendezések és szerelési anyagok jellemzői idegen nyelven



A követelménymodul megnevezése:

A műszaki cikkek (villamossági, világítástechnikai, elektrotechnikai, híradástechnikai, számítástechnikai) termékek kéziszerszámok, kisgépek, vas-áruk eladásával kapcsolatos követelmények

A követelménymodul száma: 0123-06 A tartalomlelem azonosító száma és célcsoportja: SzT-a37-50



## AUTOHIFI BERENDEZÉSEK ÉS SZERELÉSI ANYAGOK JELLEMZŐI IDEGEN NYELVEN

### ESETFELVETÉS – MUNKAHELYZET

Az autósáruház és gyors szerviz elektronikai osztályára magyar nyelven nem értő, angol anyanyelvű vásárló érkezik. A vevő minőségellenőr, aki cége országos kereskedelmi hálózatát felügyeli, ebből adódóan naponta több órát kénytelen utazással tölteni. Hangoskönyveit memóriakártyáin és az iPod készülékén tárolja, ezért olyan komplex navigációs audio/video rendszert keres, ami képes a hang és kép fájlokat USB és SD bemenetről is lejátszani. Telefonos üzleti megbeszéléseit gyakran utazás közben intézi, ezért lényeges szempont az is, hogy a rendszer rendelkezzen "Bluetooth" funkcióval.

A vevő jövőbeli tervei között szerepel az is, hogy vásárol az autós rendszerhez csatlakoztatható külön megvásárolható TV tunert a hozzá tartozó antennával, egy kalaptartóra szerelhető mélynyomó hangsugárzót és egy 5.1 csatornás digitális jelprocesszort egységet beépített Dolby Prologic II dekóderrel.

Mivel munkájából adódóan gyakran kényszerül arra, hogy szűk helyen parkoljon a belvárosi övezetekben, utólagosan beépíthető ún. "back-up" kamerát is szeretne vásárolni a készülék mellé. Az autós AV navigációs rendszer beépítését, installációját képes önállóan elvégezni, de kamera telepítéséhez segítséget kér. A tartozékként vásárolt tolatókamera beszereléséhez szükséges útmutatást a kereskedő és a gyors szervizben dolgozó munkatársak közösen adják meg. A beszerelés egyes fázisait a vevő anyanyelvén magyarázzák el. Az előkészítő műveleteket, a beépítést és a rendszer működőképességének ellenőrzését az üzletben és a gyors szervizben rendelkezésre álló eszközökkel szemléltetik.

A vevő, érdeklődő fogadása, az áru ajánlása, bemutatása, a használattal kapcsolatos tudnivalók ismertetése, a termékszavatossági, jótállási igények érvényesítési feltételeinek ismertetése a kereskedő feladata.

A bemutatott munkahelyzetek azt feltételezik, hogy a kereskedő személyes, közvetlen kapcsolatba kerül a vásárlóval, ami a hagyományos ill. az önkiválasztó értékesítési formára jellemző.

## SZAKMAI INFORMÁCIÓTARTALOM

### Reading

#### 1. Entertainment on the move

Today's car entertainment systems or components are far from simple tape cassette players with a simple radio. They are full-blown entertainment-convenience-safety and navigation centres with more inputs and outputs than you can imagine. Add to this some are even upgradeable. Even factory-installed systems, which compete with after market systems, are more complex and loaded with many features. Factory-installed entertainment systems sometimes offer relatively good performance, but not good enough for some enthusiastic well-to-do youngsters who want bigger speakers, better audio and more bass, not to mention video or mobile theatre, GPS navigation and Bluetooth wireless capability. Buying a new car entertainment system usually means upgrading the factory installed car stereo system or starting over with new components that bring you new features.

#### 2. Navigate yourself

##### The GPS Tracker

Navigation systems are not brand new, but some of the features are. Several systems have SD card inputs to upgrade old maps with the latest versions. The GPS Tracker is an electronic guarantee to be on the safe side. It provides car owner's peace of mind and security. It sends email or text message alerts to a vehicle's owner if any preset driving restrictions have been violated, such as maximum speed, geographic location, etc. This feature might be very useful for teenager drivers' parents. Company owners, supervisors and managers can also take the advantages of this feature.

##### Real Time Traffic Information

Some navigation systems are able to subscribe to Traffic TMC. This service uses FM multiplex broadcast to provide real-time traffic and weather information to drivers. Real time data are overlaid by the system. Accidents and traffic jams can be checked on the display and you can easily navigate around traffic jams without any complications.

##### Upgradeable Features

What if you wish a feature or some upgrades that your car's system doesn't have? Is there a solution for those who concerned about invalidating guarantee if the factory system is modified?

In the specialist shops you can find system expansion products that make it possible to add features to the in-dash receiver without replacing the factory system. External media controllers are installed under the dashboard or seat. In this way you can add audio, video, navigation and other accessories to the vehicle, without replacing or modifying the original system.

### 3. Digital playtime on the road

#### Mobile Movie Theatre

What can you do if you are stuck in a traffic jam? How can you keep your younger brother or sister occupied on long journeys? Install a movie theatre in your car and complete it with a subwoofer.

#### Multi-Disc Changers

Instead of storing your CDs or DVDs load them into the multi-disc changer and keep an entire library of discs ready.

#### Receiving Programs Loud and Clear

In addition to analogue AM and FM programmes, you can receive digital radio channels. This feature can be built in the system by the manufacturer or the customers can purchase a separate tuner to their system. Digital Audio Broadcasting is good for better reception and a wider range of radio stations.

#### Dual-Zone Audio/Video Operation

This feature means that the passengers in the front can listen to a source while those who are in the rear seats are able to enjoy another. Many car entertainment systems also feature headphone jacks in the rear to prevent interference between different programs.

### 4. Luxury cars with all the modern conveniences

#### USB Ports

With the help of a USB connection you can play your music or audio book collections stored on a flash drive, or connect an iPod. On the front panel screen you can view and control its contents.

#### Rear View Safety Cameras

This feature is typically used in camper vans, caravans and motorhomes. These automobiles have rear view safety camera or cameras that give the driver a clear view behind the car while backing up.

#### Remote Control



Nowadays mobile entertainment centres are equipped with full-featured remote commanders to make system operation easier.

Answer the Phone Hand-free

If you have a Bluetooth-enabled car entertainment system you will be able to make and answer phone calls through your car stereo by using the display. You can also play music and video wirelessly from your media player or telephone through the system.

## TANULÁSIRÁNYÍTÓ

### 1. Tuning in

Read the statements (1–12). Study the picture (Figure 1) and the technical specifications<sup>1</sup> of this hi-fi system then fill in the chart below. Put a tick (✓) if the sentence is true or a cross (✗) if it is false. Focus on the statements. Not all the technical details are necessary to fill in the chart. Consult your dictionary if you need. Two examples are given.



Figure 1<sup>2</sup> Navigation and audio/video system

1.	The main parts of this system are the navigation, the tuner, the CD/DVD drive, the amplifier and the display.	✓
2.	Its tuner is not suitable for receiving Long Wave Band. (from 153 kHz to 281 kHz)	✗

<sup>1</sup> Source: <http://www.pioneer.eu/eur/products/25/111/241/AVIC-F910BT/specs.html>

<sup>2</sup> Source: <http://www.pioneer.eu/eur/products/25/111/241/AVIC-F9110BT/index.html>

3.	If you want to connect an iPod device to this system you need a USB interface cable.	
4.	There is no SD slot on the front panel.	
5.	The width of the display is 5.9 inch.	
6.	DVD videos cannot be play back with the help of this system	
7.	Digital Theatre System (DTS) is supported by this system.	
8.	You can play back DivX DVDs with the help of this system.	
9.	WMA format is supported by this device.	
10.	If your mobile phone features Bluetooth technology, this system can be connected to your mobile wirelessly.	
11.	You can connect four loudspeakers to this system with the impedance of 4 or 8 Ohm.	
12.	You can connect an optional subwoofer with the impedance of 2 Ohm.	

SPECIFICATIONS	
<b>General</b>	
Rated power source: 14.4 V DC (allowable voltage range: 12.0 V to 14.4 V DC)	
Earthing system: negative type	
Maximum current consumption: 10.0 A	
Dimensions: (W × H × D): AVIC-F910BT, AVIC-F710BT	
DIN	
Chassis: 178 mm × 100 mm × 149 mm	
Nose: 188 mm × 118 mm × 16 mm	
Weight: AVIC-F910BT: 2.6 kg AVIC-F710BT: 2.6 kg AVIC-F9110BT: 2.3 kg	
NAND flash memory: 2 GB	
<b>Navigation</b>	
GPS Receiver:	
System: L1, C/Acode GPS	
SPS (Standard Positioning Service)	
Reception system: 30-channel multi-channel reception system. Reception frequency: 1 575.42 MHz	
Sensitivity: -140dBm (typ)	
Position update frequency: approx. once per second	
GPS aerial:	
Aerial: micro strip flat aerial/righthanded helical polarisation	
Aerial cable: 5.0 m	
Dimensions: (W × H × D) 33mm × 15mm × 36mm. Weight: 96 g	
<b>Display</b>	
Screen size/aspect ratio: 5.8 inch wide/16:9(effective display area: 128 mm × 72 mm)	
Pixels: 384 000 (800 × 480)	

Display method: TFT Active matrix driving
Backlight: LED
Colour system:
AVIC-F910BT, AVIC-F9110BT
NTSC/PAL compatible
AVIC-F710BT: NTSC
Tolerable temperature range:
Power on: 10 °C to + 60 °C Power off: 20 °C to + 80 °C
Audio
Maximum power output: 50W × 4)
50W × 2 ch/4W + 70W×1 ch/2W (for subwoofer)
Continuous power output: 22W × 4 (50 Hz to 15 kHz, 5 %THD, 4W LOAD, Both Channels Driven)
Load impedance: 4W (4W to 8W [2W for 1 ch] allowable)
Preout output level (max): 2.2 V Preout impedance: 1 kohm
Equaliser (3-Band Parametric Equaliser):
Low
Frequency: 40 Hz/80 Hz/100 Hz/160 Hz
Q factor: 35/0.59/0.95/1.15 (+6 dB when boosted)
Gain: ±12 dB
Mid
Frequency: 200Hz/500 Hz/1 kHz/2 kHz
Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain: ±12 dB
High
Frequency: 3.15 kHz/8 kHz/10 kHz/12.5 kHz
Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain: ±12 dB
Loudness contour:
Low: +3.5 dB (100 Hz), +3 dB (10 kHz)
Mid:+10 dB (100 Hz), +6.5 dB (10 kHz)
High: +11 dB (100 Hz), +11 dB (10 kHz) (volume: -30 dB)
HPF:
Frequency: 50 Hz/63 Hz/80 Hz/100 Hz/125 Hz. Slope: 12 dB/oct
Subwoofer:
Frequency: 50 Hz/63 Hz/80 Hz/100 Hz/125 Hz. Slope: 18 dB/oct
Gain: 24/+6 dB. Phase: Normal/Reverse
Bass boost:

Gain: 0 dB to +12 dB
DVD drive (AVIC-F910BT and AVIC-F9110BT)
System: DVD-Video, CD, MP3, WMA, AAC, DivX system
Usable discs: DVD-Video, CD, MP3, WMA, AAC, DivX
Region number: 2
Signal format:
Sampling frequency: 44.1 kHz/48 kHz/96 kHz
Number of quantisation bits: 16 bit/20 bit/24 bit; linear
Frequency response: 5Hz to 44 000 Hz (with DVD, at sampling frequency 96 kHz)
Signal-to-noise ratio: 97 dB (1 kHz) (IEC-A network) (CD: 96 dB (1 kHz) (IEC-A network))
Dynamic range: 95 dB (1 kHz) (CD: 94 dB (1 kHz))
Distortion: 0.008% (1 kHz)
Output level:
Video: 1.0 V <sub>p-p</sub> /75W (±0.2 V)
Audio: 1.0 V (1 kHz, 0 dB)
Number of channels: 2 (stereo)
MP3 decoding format: MPEG-1 & 2 Audio Layer 3
WMA decoding format: Ver.9.0 L3
AAC decoding format: MPEG-4 AAC (only encoded by iTunes): .m4a
DivX decoding format: Home Theater Ver.3.11, Ver.4.X, Ver.5.X, Ver.6.X: .avi, .divx
CD drive (AVIC-F710BT)
System: CD, MP3, WMA, AAC system Usable discs : CD, MP3, WMA, AAC
Signal-to-noise ratio: 94 dB (1 kHz) (IEC-A network)
MP3 decoding format: MPEG-1 & 2 Audio Layer 3
WMA decoding format: Ver.7,7.1,8,9,10 (2 ch audio) (Windows Media Player)
AAC decoding format: MPEG-4 AAC (iTunes encoded only)
WAVE SIGNAL FORMAT: Linear-PCM, MS ADPCM (Non Compressed)
USB
USB standard spec: USB 2.0 High Speed
Max current supply: 500mA
Max memory capacity: 8 GB
File system: FAT16, FAT32
USB class: Mass storage class
Decoding format: MP3/WMA/AAC/WAVE/ MPEG4
SD
Compatible physical format
Version 2.00



Max memory capacity: 8 GB
File system: FAT16, FAT32
Decoding format: MP3/WMA/AAC/WAVE/ MPEG4
<b>Bluetooth</b>
Version: Bluetooth 1.2 certified
Output power: +4 dBm Max. (Power class 2)
<b>FM tuner</b>
Frequency range: 87.5 MHz to 108.0 MHz
Usable sensitivity: 8 dBf (0.7 $\mu$ V/75W, mono, S/N: 30 dB)
Signal-to-noise ratio: 75 dB (IEC-A network)
Distortion: 0.3% (at 65 dBf, 1 kHz, stereo) 0.1% (at 65 dBf, 1 kHz, mono)
Frequency response: 30Hz to 15 000Hz ( $\pm$ 3 dB)
Stereo separation: 45 dB (at 65 dBf, 1 kHz)
<b>MW tuner</b>
Frequency range: 531 kHz to 1 602 kHz (9 kHz)
Usable sensitivity: 18 $\mu$ V (S/N: 20 dB)
Signal-to-noise ratio: 65 dB (IEC-A network)
<b>LW tuner</b>
Frequency range: 153 kHz to 281 kHz
Usable sensitivity: 30 $\mu$ V (S/N: 20 dB)
Signal-to-noise ratio: 65 dB (IEC-A network)

## 2. Presentation

Look at this drawing of the front panel. The main parts are numbered from 1 to ten. Complete the text with the proper expressions. The first answer is given.

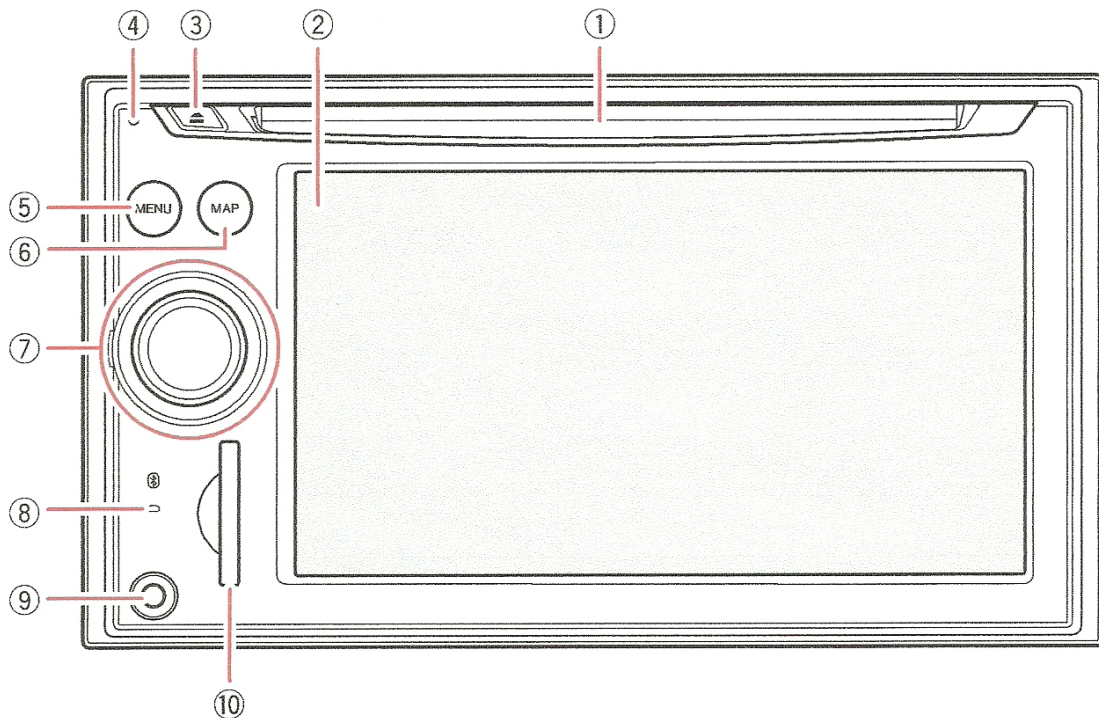


Figure 2

disc loading slot	multi control	LCD screen	map button	reset button
(1) menu button	eject button	Bluetooth connection status indicator	SD card slot	"AV" 2 input jack

Press the (1) *menu button* to display the "Top Menu". If you want to see the map screen press the (2) ..... You can set the volume with rotating the (3) ..... Moving upward and downward it once, you can change the map screen one step at a time. If you keep moving upward or downward this button you can change the map screen continuously. Pressing the centre of this button allows you to hear the previous route guidance. Pressing this button continuously mutes the AV source. Insert a CD you want to play into the (4) ..... Playback starts with the first track of the CD. Touch /DISC/ on the "AV Source" menu to display the CD screen. Touch /List/ on the (5) ....., then touch the track you want to play. If you want to take your disk out press the (6) ..... Insert a memory card into the (7) ..... with the contact surface facing to the left and press the card until it clicks and completely locks. Connect your iPod by using a USB interface cable. Use "AV1" input (RCA) on the back of the unit. An external video source can be connected to (8) ..... When your phone is paired to the navigation system wirelessly, (9) ..... lights up.

Prior to using this system for the first time after installation press the (10) ..... with a pen tip or other pointed implement.

3. Don't look back. Install a rear view camera.

Look at these pictures (Figure2) of the installation procedure then put the sentences (A-G) into the correct order. Write your answers into the chart. The first answer is given.

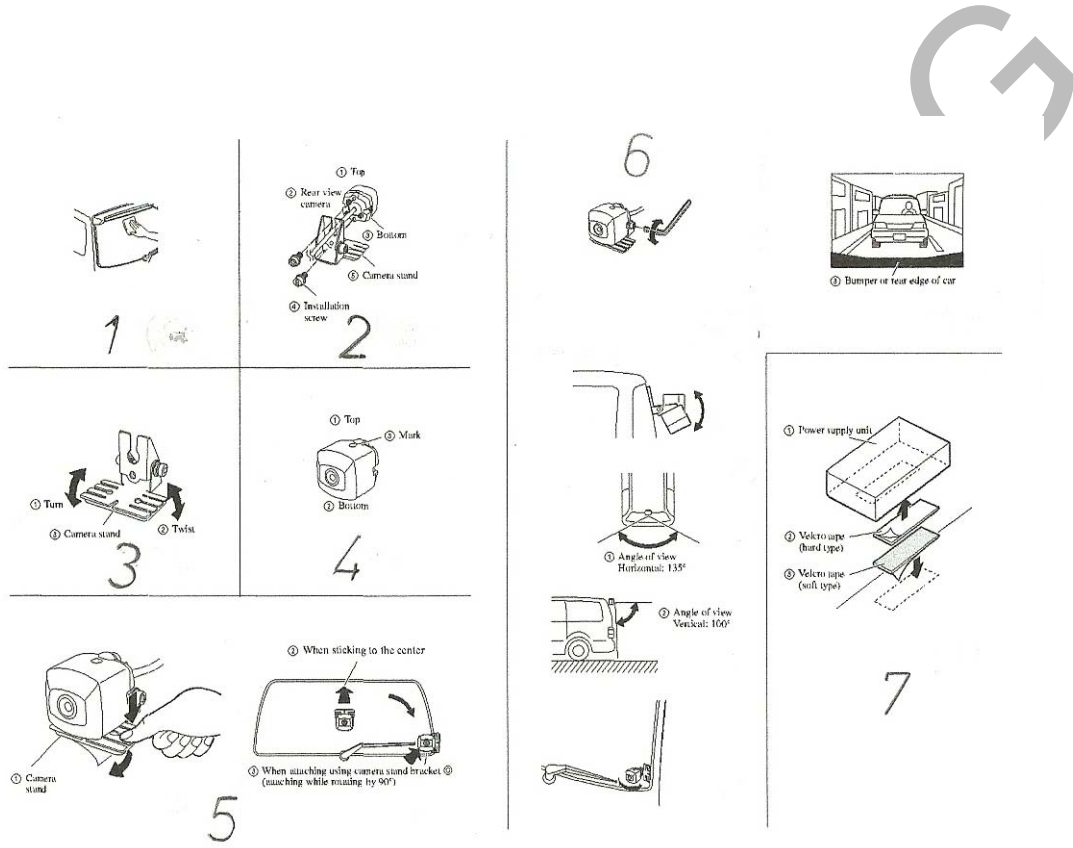


Figure 3<sup>3</sup>

1	2	3	4	5	6	7
C						

(A) Remove the rear view camera from the camera stand.

3

Source: [http://www.pioneerelectronics.com/pio/pe/images/portal/cit\\_11221/410585280ND-BC2OwnersManual0206.pdf](http://www.pioneerelectronics.com/pio/pe/images/portal/cit_11221/410585280ND-BC2OwnersManual0206.pdf)

- (B) Align the camera stand with the installation surface.
- (C) Clean the surface to which the rear view camera is to be installed.
- (D) Attach the camera stand removed in step 2 to the rear view camera with the mounting screws.
- (E) Attach the power supply unit.
- (F) Adjust the angle so that the bumper or rear edge of the car is displayed at the bottom of the TV screen.
- (G) Peel off the sheet on the back of the camera stand and stick it on.

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## ÖNELLENŐRZŐ FELADATOK

### 1. feladat

Answer the questions. Do this exercise in writing.

a) What are the features of a car system that make your driving time safer?

Handwriting practice area for question a) with four horizontal lines.

b) What are the features of a car system that make your driving time more comfortable?

Handwriting practice area for question b) with four horizontal lines.

c) What features would you put into both groups?

Handwriting practice area for question c) with four horizontal lines.



2. feladat

Brush up your memory. Look at the front side of the car system again. What are the names of the main parts, the buttons and the indicator? Do this exercise in writing.

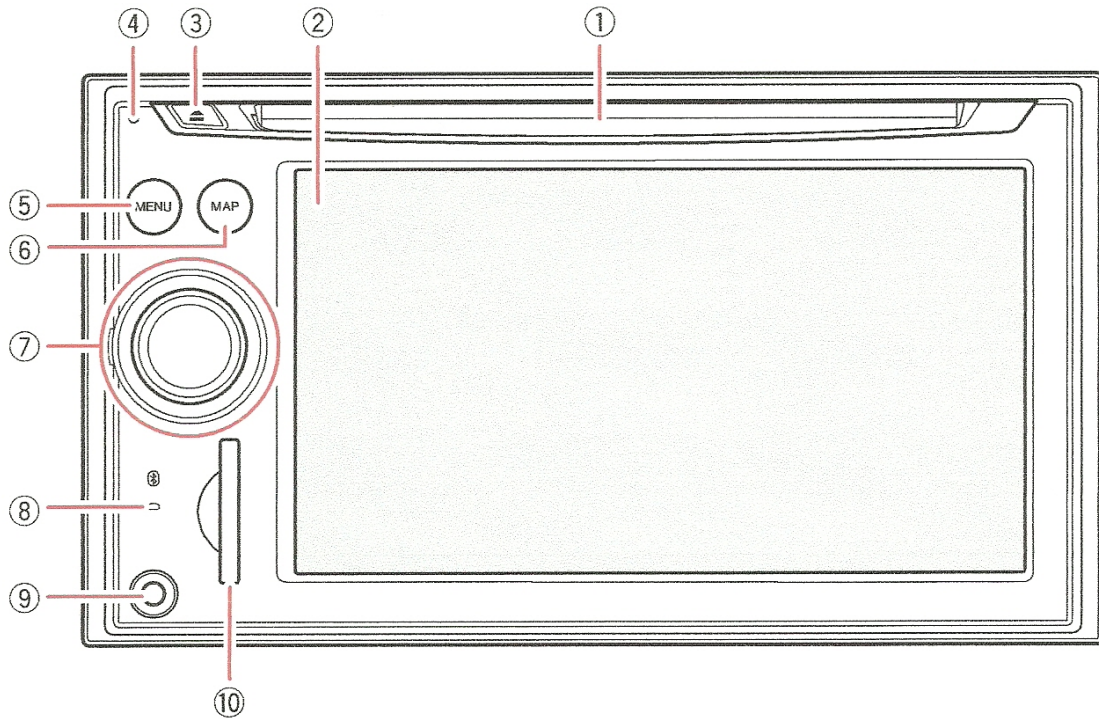


Figure 3<sup>4</sup>

<sup>4</sup> Source: <http://www.pioneer.eu/eur/support/manuals/AVIC-F910BT/index.html>



Lined writing area for notes or answers.

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## MEGOLDÁSOK

### 1. feladat

Tuning in

Answers:

1	2	3	4	5	6	7	8	9	10	11	12
✓	✗	✓	✗	✓	✗	✗	✓	✓	✓	✓	✓

### 2. feladat

Presentation

Answers:

(1) menu button, (2) map button (3) multi control (4) disc loading slot (5) LCD screen (6) eject button (7) SD card slot (8) AV2 jack (9) Bluetooth connection status indicator (10) reset button

### 3. feladat

Don't look back. Install a rear view camera.

Answers:

1	2	3	4	5	6	7
C	A	B	D	G	F	E

## ÖNELLENŐRZŐ FELADATOK MEGOLDÁSAI:

### 1. feladat

a) Answer:

Safety Features:

Rear view camera or cameras

Comment:

Thanks to safety camera systems many kids have been saved from being run over.

Bluetooth connection

Comments:

Hand-held phoning is restricted or totally forbidden in many countries. If your system features hand-free phoning you can answer the phone by touching the screen. When a call comes in, the answering operation menu appears on the screen. The audio system automatically goes into "mute" mode.

Optional answer:

Garage Door and Security Gate Controls

Some of the car systems have optional switches to permit control of automatic garage door openers, or home lighting systems.

GPS Tracker

b) Answer:

Features of convenience:

- Mobile Movie Theatre
- Dual-Zone Audio/Video Operation
- Multi-Disc Changers

Optional answer:

Infrared headphones:

Comment: If your vehicle audio/video system has IR transmission you can use infrared headphones.

c) Answer:

Remote commander

Using a remote control by one of the passengers can be comfortable and you can also avoid distracting the driver's attention from driving. That is why it is both secure and comfortable.

Bluetooth connection

Optional answers: every feature of a car system might be comfortable and secure at the same time.

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## 2. feladat

Answer: (1) disc loading slot, (2) LCD screen, (3) eject button, (4) reset button, (5) menu button, (6) map button, (7) multi control, (8) Bluetooth connection status indicator (9) "AV2" input jack, (10) SD card slot



### 3. feladat

Answer:

1. Clean the surface to which the rear view camera is to be installed.

Possible variant: Clean the surface where you wish to stick up the back-up camera.

2. Remove the rear view camera from the camera stand.

3. Align the camera stand with the installation surface.

4. Attach the camera stand removed in step 2 to the rear view camera with the mounting screws.

5. Peel off the sheet on the back of the camera stand and stick it on.

Possible variant: Remove the plastic layer on the back of the camera frame and stick it on.

6. Adjust the angle so that the bumper or rear edge of the car is displayed at the bottom of the TV screen.

7. Attach the power supply unit.

Possible variant: Fix the power supply unit.

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## IRODALOMJEGYZÉK

### FELHASZNÁLT IRODALOM

<http://www.pioneer.eu/eur/products/25/index.html>

<http://jvcmobile.co.uk/index.php>

<http://www.alpine-europe.com/>

### AJÁNLOTT IRODALOM

[1]ACC/A hangszórók csoportosítása, főbb jellemzői, minőségi követelményei

[1]ACC/A CD-s autórádió csoportosítása, főbb jellemzői, minőségi követelményei

X3.hu:Autó-hifis FAQ. <http://x3.hu/freeweb/frameset.x3?user=/aty87&page=/hifi/hifi.html>  
[2009.07.29]

[1]ACC/Az autóhifi erősítők csoportosítása, főbb jellemzői, minőségi követelményei

[1]ACC/Az autós hangszórók, mélynyomók csoportosítása, főbb jellemzői, minőségi követelményei

Fabula László: Műszaki cikkek eladásával kapcsolatos követelmények. Duál Budapest Bt, Budapest, 2009. 75-77.o. X3.hu: Autó-hifis FAQ. <http://x3.hu/freeweb/frameset.x3?user=/aty87&page=/hifi/hifi.html> [2009.07.29]

[1]ACC/Az autóhifi szerelési anyagainak csoportosítása, főbb jellemzői, minőségi követelményei

<http://www.pioneer.eu/eur/products/25/index.html>

<http://jvcmobile.co.uk/index.php>

<http://www.alpine-europe.com/>

<http://www.dolby.com/consumer/index.html>

A(z) 0123–06 modul 037–es szakmai tankönyvi tartalomeleme felhasználható az alábbi szakképesítésekhez:

A szakképesítés OKJ azonosító száma:	A szakképesítés megnevezése
31 341 01 0010 31 03	Műszakicikk eladó

A szakmai tankönyvi tartalomelem feldolgozásához ajánlott óraszám:  
18 óra

A kiadvány az Új Magyarország Fejlesztési Terv  
TÁMOP 2.2.1 08/1–2008–0002 „A képzés minőségének és tartalmának  
fejlesztése” keretében készült.  
A projekt az Európai Unió támogatásával, az Európai Szociális Alap  
társfinanszírozásával valósul meg.

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Felelős kiadó:  
Nagy László főigazgató