



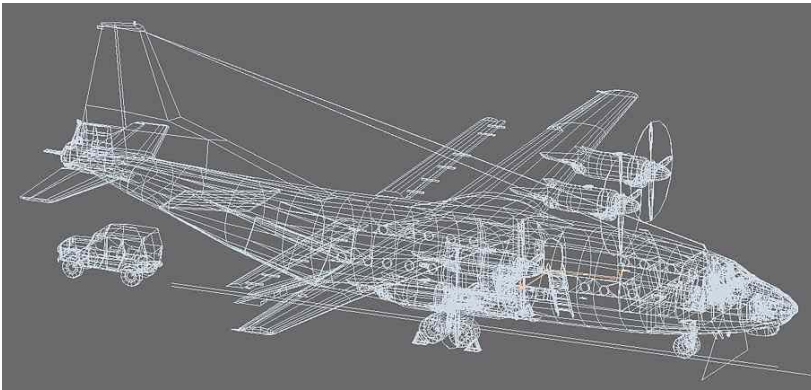
## THE INTRODUCTION

*Antonov An-12BK (Cub) for FS 2004 - version 2009 of GMax model, complete animation, detailed worker VC with 3D by crew and animation co-pilot. 8 versions textures, panel and gauges, kind from a cabin of the navigator. Effects. Paint-Kit. Below - more detailed description.*

## 1. SPECIFICATION

Year deployed	
Wing span, m	- 38.00
Length, m	- 22.10
Height, m	- 10.53
Wings area, m2	- 121.7
Weight, kg	
- empty aircraft	- 28000
- normal take-off	- 55100
- maximum take-off	- 61000
Internal fuel, l	- 18100
Engine	- 4 TE AI-20K
Power, hp	- 4 Y 4250
Maximum speed, km/h	- 777
Cruising speed, km/h	- 670
Range, km	- 5700
Combat range, km	- 3200
Service ceiling, m	- 10200
Crew	- 5 + 1
Useful load:	90 soldiers or 60
Armament:	paratroops or
	20000 kg freight
	2 23-mm
	cannons AM-23

## 2. MODEL



The model was carried out in 3D Max9 and was consistently translated in GMax, whence was compiled in FS. The model is submitted by three variants:

- 1) military-transport variant - P. 2.1;
- 2) cargo conversion variant with a cargo the container - P. 2.2;
- 3) cargo conversion variant with a cargo UAZ - P. 2.3

The models differ only by kind of a cargo and that on military-transport model there are baseguns, guns AM-23, the tail sigh installation KPS-53 and sight bomb NKPB-7 in a cabin navigator, on cargo models all this is demounted.



P. 2.1



P. 2.2



P. 2.3

### 3. TEXTURES

8 variants textures are submitted: 1-VVS (Air Force –in 3 variant -№№ 15,09,28) of Russia, 2-VMS (Navi) of Russia, cargo airlines: 3 - Kosmos, 4 - ATRAN, 5 - GOLIAF, 6 - Air Armenia. Textures 8-bit, are translated in DXT-3 a format, textures exterior of parts have MirMapping. The variants are shown in figures P.3.1 - P.3.6:



P.3.1 VVS (3 variants)



P.3.2 VMS



P.3.3 Kosmos



P.3.4 ATRAN



P.3.5 Goliaf



P.3.6 Air Armenia

## **4. INSTALLATION**

To unpack a package in a temporary folder, then:

- To unpack a package in your folder FS:

```
Fs9\Aircraft\An12BK\ - Aircraft.cfg
                      - An12Bzh.air
                        \ Model
                        \ Model. AFR
                        \ Model. CGR
                      - \Panel
                      - \Sound
                      - \Texture. ARM
                      - \Texture. ATR
                      - \Texture. GOL
                      - \Texture. KSM
                      - \Texture. VMS
                      - \Texture. VVS
```

In same folder can leave Manual and Paint-Kit.

Further: a folder Effect - in a folder Fs9\Effect\....

.... \Effect\Texture - in a folder Fs9\Effect\texture\.....

That's all - at desire gauges from a folder \Panel (it is files An12zh.cab, An12zhAp.cab and An12zhNav.cab) it is possible to transfer to a folder Fs9\Gauges\ - then they will be accessible to use in other models.

## **5. PANEL**

The panel consists of several independent panels, the majority from which is accessible both from 2D cockpit, and from 3D cockpit (VC).

The panel.cfg has some windows:

- 1 – Main panel**
- 2- NAVIGATOR&Radio)**
- 3 - AUTOPILOT**
- 4 - Flight engineer**
- 5 - Start PANEL**
- 6 - Navigator View**
- 7 - Landing panel**
- 8 - Yoke**
- 9 - GPS**
- 10 - Minipanel**

### **5.1 Main panel (2D)**

The main panel contains the majority necessary gauges for driving and control of navigation. The arrangement and set gauges is made according to the real plane, but there are some differences is caused by that it FS, operates all one man, at you is not present neither co-pilot, nor flight engineer - for more convenient review of the basic devices and control above a situation.

The specification gauges on the main panel is submitted on the circuit P. 5.1, pay attention that the window №8 (Yoke) is by default included together with the main panel:





Pic. 5.1

- |   |   |
|---|---|
| 1- Altitude Indicator (ADI) 1                               | 16 – DME 2  |
| 2- Airspeed (km/h)  | 17 – Flap levers  |
| 3 – Altimeter (meters)                                      | 18 – Landing gear levers  |
| 4 – Vertical speed  | 19 – Parking Brake  |
| 5 – HSI (horis. situation indicator)                        | 20 – Autopilot lamp indicator   |
| 6 – RMI dual (ADF-NAV2)                                     | 21 – Inert markers  |
| 7 – Elevator trimmer digital                                | 22 – Revers indicator   |
| 8 – Altitude Indicator (ADI) 2                              | 23 – Icons (L to R: Nav-Start-Fengineer-Yoke-Navcabin-Map-GPS-ATS-Land) |
| 9 – Airspeed Mach   | 24 – Clock  |
| 10 – Radio altimeter (m)                                    | 25 – UPRT - shows percent of deflection of Throttle lever (1en/2en)     |
| 11 – Lights switches (L to R: beacon-nav-land-taxi -cocpit) | 26 – Engines temperature (1en/2en)                                      |
| 12 – Turn indicator   | 27 – Oil pressure (1en/2en)   |
| 13 – UASP (angle of attack)                                 | 28 – Fuel flow (1en/2en)  |
| 14 – Animation yoke   | 29 – Elevator trimmer wheel   |
| 15 – DME 1  |   |

## 5.2 Navigator and Radio

Unfortunately, I did not manage completely to transfer the mate panel with all by its devices, basically by virtue of my incompetence in that, as to RSBN, nevertheless basic gauges for navigation I have made and has combined them with radio. In general, what to not lose the way, quite enough. I hope, at us will be enough developers, which further will develop this panel in complete volume. The description of the panel (P. 5.2) is lower:



P. 5.2

1. - Ush - the indicator of navigator (rus. - " Ukazatel shturmana " - Ush) - The activity of this device differs from European and American, in the given model works similarly RMI (yellow needle ADF, white - NAV2).
2. - Radio compass (ADF)
3. - Airspeed indicator (Mach)
4. - HIS (NAV-1)
5. - RMI (NAV2&ADF)
6. - Clock
7. - DME-1
8. - DME-2
9. - Altimeter (m)
10. - Nav-GPS switch
11. - Vertical speed
12. - Airspeed indicator (km/h)
13. - NAV1 selector (rus. " Kurs MP-1 ")
14. - NAV1 sound switch
15. - Icon NAV panel on/off
16. - Ammeter
17. - Icon Autopilot panel on/off
18. - NAV2 sound switch
19. - NAV2 selector (rus. " Kurs MP-2 ")
20. - ADF-1 selector (rus. "ARK-1").
21. - ADF-2 selector (rus. "ARK-2").
22. - Com radio
23. - Transponder.
24. - ADF channel switch.

## 5.3 AUTOPILOT

The auto pilot is made in standard for FS style with windows of data input and style only externally under the real auto pilot An-12 (P. 5.3). Probably, the amateurs of complete realism will be a little disappointed, but it is quite acceptable to many, is especial for the beginners. Wishing apply more similar models can to register in panel.cfg the auto pilot for example from model Yak-40 or An-24 - on your discretion. I have made that could - description below:



1. Master AP.
2. ALT lock switch.
3. HDG lock switch..
4. NAV lock switch. Icon close AP.
5. Auto Trottle switch.
6. Lamp of master
7. . Lamp o f ALT.
8. Lamp of HDG.
9. HDG window-selector
10. . ALT window-selector.
11. NAV window-selector.
12. . VC window-selector.
13. Max-IAS switch.
14. - Max-IAS selector.
15. - Max-IAS window.
16. - Icon Autopilot close.

Pic. 5.3

## 5.4 Flight engineer panel



(P. 5.4)

The panel борттехника is realized from two parts of a part of the top panel (button fluger) and central part of the panel of the plane (P. 5.4). In the top part the cover of buttons of windvanes is located, the cover opens and is closed click on the appropriate red arrow ( P. 5.4.1).

Besides in the bottom left part of the panel there is a fragment of the panel FE on ADO, switches of opening cargodoor and unloading of a cargo. Below - specification gauges:

- 1 - Fluger switch (1-4)
- 2 - Animation fluger cover
- 3 - Fluger lamps group
- 4 - UPRT (1-2 and 3-4) and PRM (1-2 and 3-4)
- 5 - Engines temperature (1-4en)
- 6 - Oil pressure (1-4en)
- 7 - Fuel flow (1-4en)
- 8 - Fuel quantity
- 9 - Fuel tank selector
- 10 - Lights switches
- 11 - Cargo door open/close
- 12 - Upload/Download Cargo
- 13 - Icons:

L-to-R: FEngineer panel close  
Start panel open  
AP panel open  
Nav panel open





( P. 5.4.1)

In figure a cover  
Windvanes is lifted,  
Buttons flugers  
The engines are pressed  
And the pumps are switched off.

## 5.5 START panel



The panel of start of engines in figure P. 5.5. Has animation a cover, which opens by pressing a red arrow - under a cover actually and there are toggle - switches of start of the engine (P. 5.5.1).

1. - Generators group (1-4).
2. Ampermeter and battery switch.
3. PRM. (1-2) and (3-4).
4. Icon start panel close
5. Icon Fengineer panel open.
6. Pumps group (1-4).
7. Pumps lamps group (1-4).
8. Cover of start switches.
9. Start switches.

Pic 5.5





#### P. 5.5.1

In figure the cover of start of engines is open - closing by pressing a red arrow.

## 5.6 NAVIGATION CABIN VIEW

This kind has no the special value for management or navigation - is made for general sensation of flight you see glass a cabin of the navigator - one of distinctive features An-12. The cabin has some navigating devices for the control, the navigating panel and auto pilot are accessible from this panel with the help of icons. Has one lack: Yoke is not switched off automatically - therefore there is an icon Yoke -

disconnect yoke manually by click on the appropriate icon (P. 5.6.). One more lack - if you include NAV the panel and Autopilot the panel at first in the main panel - they after that these panels will be displayed incorrectly in this kind - will appear as though outside of a cabin. Therefore council: before the beginning of flight go in Navigator view, it is necessary to include and to switch off NAV the panel and Autopilot the panel - after that they will be displayed correctly in all panels.



- 1 - Ush (RMI)
- 2 - RMI (NAV2 - ADF)
- 3 - Icons
  - L - to - R:
  - Nav panel open
  - Yoke close
  - AP open
  - NAV cabin close
  - Map open
  - GPS open
  - ATS open
- 4 - Magnetic compass

P. 5.6.

## 5.7 LANDING panel



P. 5.7.

It is original alternative мини of the panel - simplified panel for use at landing(planting) (P. 5.7.)

Gauges on this panel are similar gauges on the main panel, therefore there is no sense in their description. Differs only by one gauges - digital Radio Altimeter - in the real plane such gauge is not present, is inserted for convenience of the control of relative height at landing(planting).

Height is measured in meters.

## 5.8 Yoke panel

Here, probably, all is understandable - animation a steering wheel - is included by default. If wish to disconnect - open panel.cfg, find:

```
[Window07]
Background_color=0,0,0
size_mm=1024,768
position=0
visible=1
ident=250
```

```
gauge00=An12zh! ZH_yoke, 230,615,345,185
```

Then change **visible=1** on **visible=0**.

## 5.9 MINI panel

Мини the panel is changed concerning standard, the original devices An-12 are inserted, is added also digital Radio Altimeter.



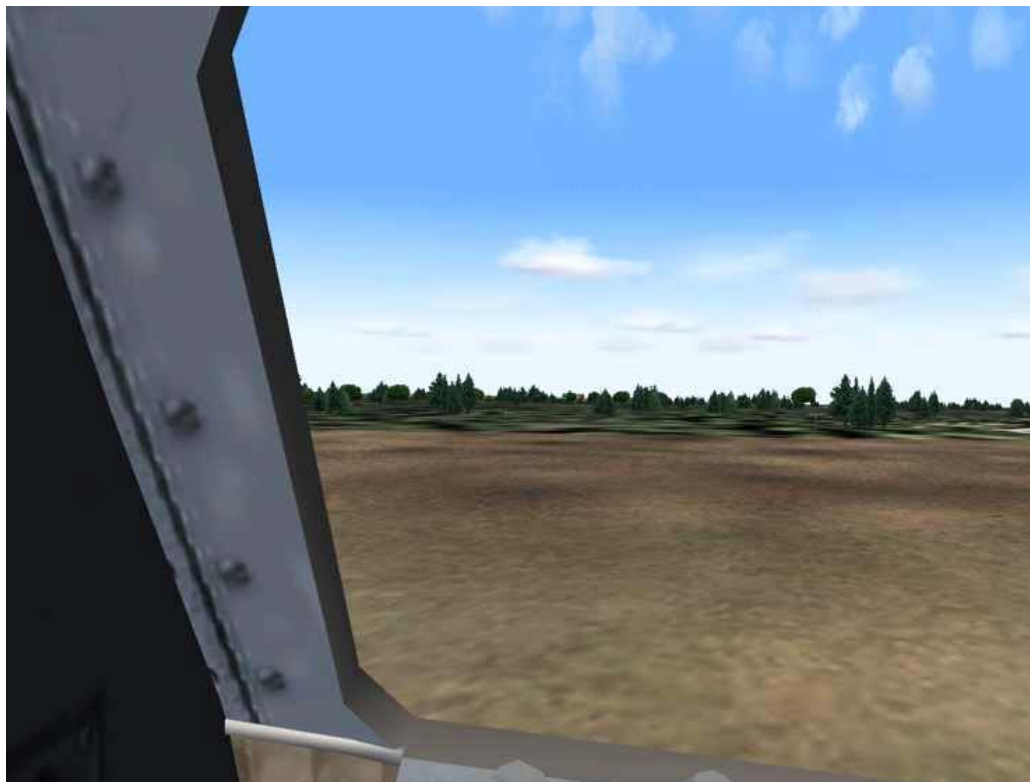
## 5.10 Wings views

Wings views standart - control of keys NUM or by buttons Hotas - except for views "REAR" (Pic.5.10.1) and "LEFT-REAR" (Pic.5.10.2) of change, that have no sense at standard use - sight rests against an armchair of the pilot. Instead of REAR - kind from a place flight engineer on the central panel, instead of LEFT-REAR - kind from a back left window cockpit.



(Pic.5.10.1.)





(Pic.5.10.2)

## **6. VC**

VC is executed very in detail, with the purpose of use it is not simple as one of elements of model, and with the purpose of use at all stages of flight as the worker VC. It(he) has 3D crew, animation co-pilot, all working devices main 2D of the panel and panel flightengineer, therefore description gauges in this section is not present - look section 5.1. Besides VC has own animation of levers and some gauges. Animation in VC is shown in figure P. 6.1:



P. 6.1.

- |                                |                          |
|--------------------------------|--------------------------|
| 1. – Throttle lever (1-4 eng.) | 6. – Parking brake.      |
| 2. – Autotrottle Lever.        | 7. - Landing gear lever. |
| 3. – Parking brake.            | 8. – Animate Co-pilot.   |
| 4. – Elevator trimmer wheel.   | 9. – Pedals (R-L).       |
| 5. – Yoke.                     | 10. Flaps lever.         |

The note: in a real airplane gauge 2 - is used as fixing lever for prevention of displacement Throttle lever from vibration. In this case works at inclusion autotrottle (Max-IAS). Gauge 3 - in the real plane serves for fixing mechanization of a wing and tail (ailerons, flaps and similar) on parking. In this case works at inclusion Parking brake.

Two standard kinds VC from a place of the commander - are below shown at correct installation it should look as in figures P.6.2 and P.6.3:



(P.6.2)



(P.6.3)

You can move in limits VC without addition utilities using buttons of the keyboard. For example: I use joystick 12 buttons with "Handl twist" - as a result of a control button by the cursor practically not use. We come in the menu FS (menu Controls/Assignments/Views - Eyepoint) and we change assignment Eyepoint - right - Left - forward - back on buttons of the cursor accordingly Right cursor - Left cursor - Up cursor -Down cursor, move in VC (Eyepoint upwards - downwards) UP-Down I have connected on buttons 1 and 9. Restoration in an initial situation (place of the commander) - "Reset Eyepoint" - we connect the button ENTER. Very conveniently - I recommend, in long flights, characteristic for planes of a class An-12 - sometimes very much not bad to take a walk on a cabin. In figures P.6.4 and P.6.5 the kinds from the changed points are shown:





(P.6.4) - View from FE place.



(P.6.5) - View from co-pilot place.

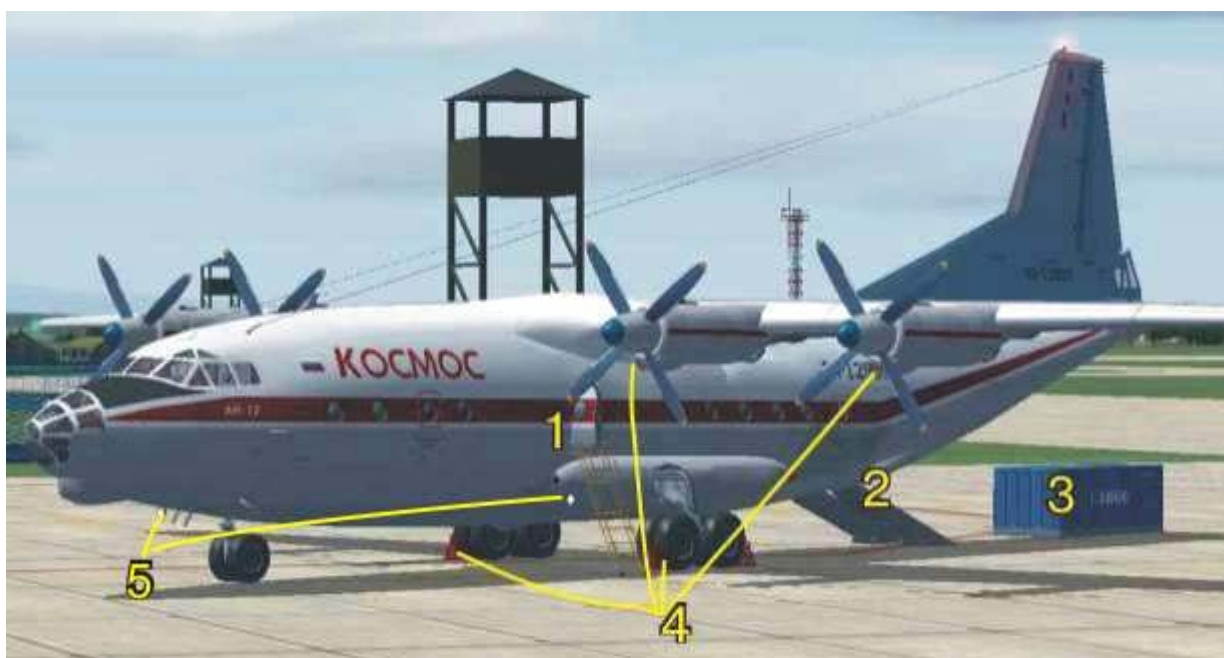
From VC are accessible light Landing Ligts and has own illumination of a cabin in night time. At the plane An-12 internal illumination of green colour - as in figure P. 6.6.



(P.6.6)

## **7. EXTERNAL ANIMATION**

The external visual model too has own animation. Except for a standard set animation of parts (flaps, ailerons, elevators, rudders, wheels, propellers) there is an opportunity to use animation, which is shown in figure P. 7.1:



P. 7.1

- 1.- Door open-close and stairway (default key Shift+E+1) - use on land only!
2. - Open - close Cargo Door - if not is nominated is necessary to nominate in Controls/Assignments/TailHook)
3. Upload / download of cargo (Key "Wingfold" - if not is nominated is necessary to nominate in Controls/Assignments/ Wingfold)

4. - Cover of the engine Open/Close and Stop frame of wheels (SHIFT+CNTR+F4 (remove) SHIFT+CNTR+F1 (set)). They also automatically remove at start of the engine or are set at shut down.
5. - Landing Lights Up-Down (Default "Cntr+L").

## 8. AIRDYNAMIC

For a basis of dynamics used of unpublished my model C-130, dynamics turboprop, all characteristics for heavy turboprop of transports on weight, moments of inertia, speeds and quantity of fuel are sustained. The elevating force and braking on flaps is amplified(strengthened), therefore plane well feels at low speeds on landing and quickly types height and speed at short enough rise. For the real pilots such dynamics, probably, will seem a little simplified, but for those who to study to fly on heavy transports - I hope, will be quite normal.

## 9. SOUND

I am not by the developer of sounds, nothing I understand in audio technologies, therefore I can only recommend ready packages of sounds, which exist as freeware. Normal sounds for An-12 (engine AI-20K) I have not found, there is a truth the written down sounds for AI-20 for IL-18, but they personally have not liked to me - package not complete. Therefore I use sounds for An-26 from **Mike Maarse** v2.0, very good package, though I perfectly understand, that An-26 has 2 engines - therefore in sound.cfg it is possible to add still sound from 2 engines, and (I can is not right) it to turn out a quite good sound. A thank **Mike Maarse** for good work - this package I put(apply) as recommended.

## 10. EFFECTS

Complete set includes 6 effects:

1. Start engines.
2. Dust of ground airfield (P. 10.1).
3. Snow dust of winter ground airfield (P. 10.2).
4. Parachute drop of cargobox (P. 10.3).
5. VC lights green color (part 6 P.6.6).
6. Contrail - characteristic for An-12 black colour (P.10.4)



Pic 10.1





Pic 10.2



Pic 10.3



Pic 10.4

## **10. FS9/FSX**

The model was developed and was compiled from GMax in FS9 only for FS 2004 according to SDK 2004, therefore any claims on use of model in FSX are not accepted. The model was not tested at all in FSX. If you will have desire to use model in FSX, that, probably, in standard FSX she(it) work will be normal, the problems can be only with landing light. Gauges too should work normally, as they are written on xml, which understands FSX. In gauges will not work only HelpID (contextual help), as for FSX she has other parameters. The special inconveniences it will not create, the usage by some navigating gauges - will be inconvenient only for example at installation of a rate of the auto pilot from a place of the commander on RMI or radiocompass ADF. As to FSX SP-2 and Acselelator, the problems can be much more serious. In cockpit of a glass are physically removed, and on glasses of a cargo cabin the masks are imposed, therefore these windows will be not transparent, that sharply will worsen quality of visual model. Therefore very much I ask to not undertake any alterations in FSX without the coordination with the author. I already have sad experience of the similar non-authorized alterations. My model Tu-95 for FS9 without the coordination have altered and have published in a network, these "developers" could not even alter gauges from a format gau, which work only in FS9. After that me the whole month was sent with the claims " why do not work gauges? ". Therefore all alterations in FSX will be considered piracy - model on it initially is not designed.

## 10. PAINT-KIT

Consists of two parts - Military transport and civil. Military on a basis textures VVS, civil - on a basis Kosmos. All in a format psd with preservation layers. Includes 5 basic textures exterior. If want to change something in интерьерной of a part of exterior - find textures, which have in the name an index INT. textures VC in the name have an index VC. If want to change clothes of the pilot -An12\_pilot.bmp.

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*PS. I am sorry for my terrible English.*

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### THE SPECIAL GRATITUDE:

- Large thank for the sent photos and information **Alexander GORCHAKOV** and **Kirill MRYKHIN**;
- Large thank for the help in make textures VVS-09 and VVS-28 **Kirill BURDAK**;
- In a package is used freeware sound-pack from **Mike MAARSE**, large thank to the author for good work and interest to Russian aircraft.

### COPYRIGHT:

Freeware, use of the given model and its parts, gauges, effects is forbidden for commercial use. The large request - at accommodation of this model or repaints on other sites to inform the authors. Anyone upgrade of the given model only from the sanction of the authors. Forbid accommodation in on CD, DVD, other editions without the sanction of author.

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