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01-11-2009, 07:51 PM

#1 (permalink)

j3cubcapt BenzWorld Member



Date registered: Nov 2005
Vehicle: 2003 ML500 & E320
Location: Dallas Texas
Posts: 155

DIY Install Pioneer AVIC F900BT in '03 Fiber Optic ML500

Hi, This is a DIY on how to install a Pioneer AVIC F900BT in a fiber optic system '03 ML500. I did not install an after market Amp because I really don't listen to loud music.

You WILL NOT be able to use the Bose Amp, CD Changer or Sub.

I plan on doing the following upgrades soon...

- 1) Backup Camera
2) HD radio module
3) Sirius module

If you see anything in this DIY that is incorrect, I would appreciate your suggestions to improve it. If you would like a copy, PM me your email and I will send it to you.

Thanks to everyone on this board that I "Borrowed" this info from!

Attached Thumbnails

Hello, this is a DIY of how I installed a Pioneer AVIC-F900BT into a 2003 ML500 equipped with a Bose sound system. I wanted to capture this info because reading through all of the posts, it was very hard to determine if this could even be done due to the fiber optics in the ML.

Note when installing an after market radio you WILL LOOSE the Bose Amp and CD changer. I did NOT install an amplifier because I do not listen to Thumping loud music. If you do then you should install a amp that will supply stable 2ohm.

On the next few pages are the parts I used, prices and web pages. Next are some familiarization photos so you can get an idea of what you are getting yourself into.

You will see bits and pieces from a number of postings on the site and I take no credit for the hard work of our fellow members. I have simply cut, pasted and re-packaged everything into one document. Special thanks to " Builder2961" "JoeE46M3" and "Bogie"!

When I visited audio install shops, they all stated that this could not be done. Don't listen to them....

Enjoy and good luck!

Will

Items needed to install a Pioneer AVIC-F900BT into a Bose equipped 2003 ML500

Wiring Harness Metra Volkswagon 70-1784 harness
http://www.thetwistergroup.com/store/customer/product.php?productid=70-1784%20D19031&source=fr

\$4.12



Antenna Adapter
http://www.crutchfield.com/p_12040VW12/Antenna-Adapter.html?tp=2589

\$4.99



Adapter Double DIN Pioneer ADT-VA133

http://www.bestbuy.com/site/page.jsp?skuId=8273959&type=product&id=1170290767068&ref=06&loc=01&ci_src=14110944&ci_sku=8273959

\$39.99



CD-IU230V

PiDad® Audio/Video Direct Cable*

<http://www.pioneerelectronics.com/PUSA/Products/Navigation/Accessories/CD-IU230V>

\$50.00



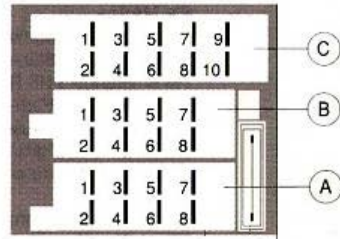
Removal

First take some 3M blue tape and stick it all around the MCS opening so you won't hack up the plastic or the Burl wood trim. Remove the MCS with removal tools. Slide them in tapered side toward the center, apply some outward pressure until you hear the clips release then work out the MCS. Disconnect all the cables and tuck away the D2B fiber connector and the CD changer harness as they won't be used.



On the next page, if you see a **LINE-THROUGH**, This means that the items lined through was not used in the modification. A **HIGHLIGHT** means I did use that item.

Mercedes-Benz M-class MCS



Connector A - 8 Pin DIN ISO

Pin Color Description

A01	Blue	ESP/ETS/BAS control module, speed dependant volume control, VSS NAV
A02	Green	Data link connector (DTC readout) / Phone mute
A03	Gray	Backup lamps reverse NAV
A04	Red	Battery (circuit 30) +12V constant on, fuse F21 25A
A05	Red	FM-AM WEATHERBAND amplifier Standard radio
A05	Red	FM AM WEATHERBAND amplifier and Bose premium system power trigger
A06	White	PHM dimming and DAY/NIGHT headlight, instrument lights
A07	Pink	Power (circuit 15) +12V switched, ignition, fuse F10 10A
A08	Brown	Ground

The Metra Plug has two sections. The upper section attaches the original Mercedes "B" plug on the bottom to the original "A" plug.

I have removed all of the "Speaker" wires from the "B" or upper section of the plug. To remove them use a pick to release the pins. Save these wires as they will be used to connect to the Bose Amp adapter later.

Now on to the "A" or lower section. I have only the necessary wires inserted. Below is a wiring diagram that I used. You can see the description, then the pin location. Simply match the original MB colors with the Metra/F900BT colors!



Description	Location	Mercedes Harness	Metra/F900BT
Vehicle Speed Signal	A1	Blue	Pink
Reverse signal	A3	Gray	Violet/White
Constant 12V	A4	Red	Yellow
Am/Fm Amplifier	A5	Orange	Blue
Illumination	A6	White	Orange/White
Switched 12V	A7	Pink	Red
Ground	A8	Brown	Black

Connector B - 8 Pin DIN ISO

This is the original Mercedes "B" plug. For the NON-fiber optics guys, this would have all of the speaker wires. With the FO system, all of the speaker stuff is sent through that system. So there is nothing for us to do with this plug. This is why we removed all of the wires from the "B" side of the Metra adapter.



This is the wiring diagram for the CD changer. We will loose this anyway so no need to discuss it.

Connector C - 10 Pin DIN ISO CD Changer

Pin	Color	Description	Notes
01	Gray	CD changer (in trunk)	AUX stereo audio in right AUX in with Blaupunkt AWIN2R
02	White	CD changer (in trunk)	AUX stereo audio in left
03	Black	CD changer (in trunk)	common/coax shield for 1 & 2
04	Red	CD changer (in trunk)	power - constant on 12V
05	Orange	CD changer (in trunk)	power - switched 12V - Ignition
06	Black	CD changer (in trunk)	common/coax shield for CDC data lines 8 to 10
07	Pink	CD changer (in trunk)	D2B wakeup (don't use as power source)
08	Blue	CD changer (in trunk)	CDC data
09	Yellow	CD changer (in trunk)	CDC data
10	Green	CD changer (in trunk)	CDC data



Will in Dallas Tx

- 2003 ML500 Black/Tan
- 2004 E320 Sand/Tan
- 2000 Alfa spider Yellow ~ Sold :-)

OFFLINE

QUOTE

01-11-2009, 07:52 PM

#2 (permalink)

[j3cubcapt](#)
BenzWorld Member

Part 2



Date registered: Nov 2005
 Vehicle: 2003 ML500 & E320
 Location: Dallas Texas
 Posts: 155

Attached Thumbnails

Connector D - 1 Pin

01 Coax Black Antenna cable
 to AM FM WEATHERBAND
 rear amp (Fuba)



Connector E - 2 Pin Plug AMP

Pin 1 - D2B fiber - phone, AUX audio etc
 Pin 2 - D2B fiber



Connector F - 1 Pin HRS

Coax black GPS



OK, The Bose Amp is on the firewall about this level. You can remove this 10mm bolt to remove the Amp. Then remove the harness adapter.

Pin 1 - White - unknown.
 Pin 2 - bare - unknown.
 Pin 3 - Brown - unknown.
 Pin 8 - Red - unknown.

Power - 12V switched
 Pin 9 - Brown - (-)
 Pin 26 - Red - (+)

Sub-woofer
 Pin 11 - Yel - (-)
 Pin 19 - Green - (+)

Front Left speaker and tweeter
 Pin 13 - Blue - (-)
 Pin 21 - Green - (+)

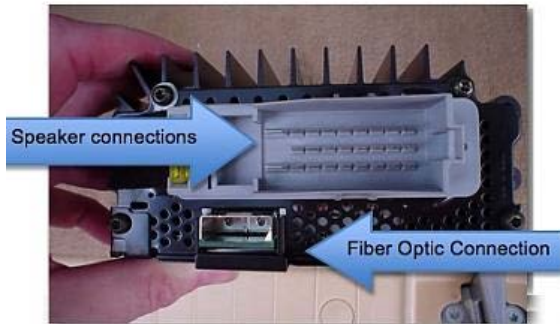
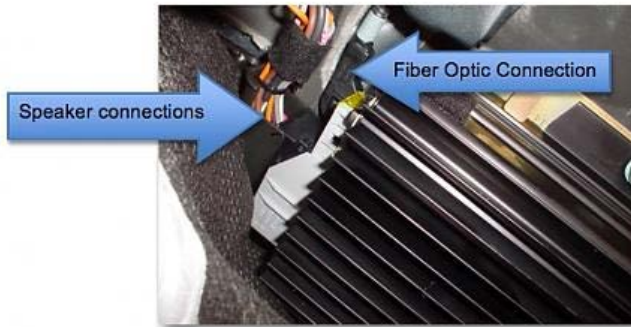
Front Right speaker and tweeter
 Pin 14 - Green - (-)
 Pin 22 - Blue - (+)

Rear Left speaker
 Pin 15 - Orange - (-)
 Pin 23 - Red - (+)

Rear tweeters
 Pin 16 - Drk Yel - (-)
 Pin 24 - Yel - (+)

Rear Right speaker
 Pin 17 - Orange - (-)
 Pin 25 - Red - (+)





This is where I attached my speaker wires that I removed from the Metra Plug.
I used the Pin numbers above to locate the proper holes for each respective speaker.



This is how the wire bundle looked after completing the wiring. The bundle goes from the Amp adapter up to the head unit.



Parking Brake Bypass "how to"

<http://www.avic411.com/forum/viewtopic.php?t=17013&postdays=0&postorder=asc&highlight=parking+brake+bypass+f900&start=0>

If you elect you can disable the factory safeties on the Navigation unit, so you won't have to apply the parking break every time you want to set a destination. This is easily accomplished.

Take the Yellow/Black "MUTE" wire out of the #1 position on this plug and move it to the #4 position. Then ground this wire and the "PARKING BRAKE" wire from the F900BT harness. This will NOT affect any operation of the radio. This WILL permit the changing of destinations or playing DVD's while moving.



11

OFFLINE

QUOTE

01-11-2009, 07:53 PM

#3 (permalink)

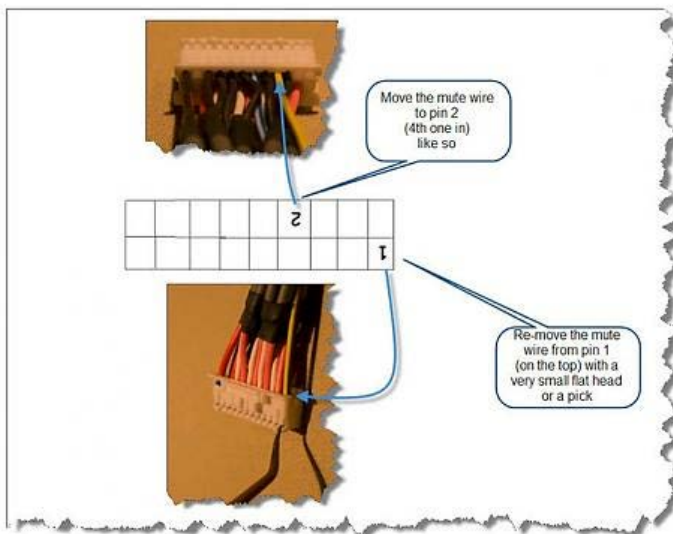
[j3cubcapt](#)
BenzWorld Member

Part 3



Date registered: Nov 2005
Vehicle: 2003 ML500 & E320
Location: Dallas Texas
Posts: 155

Attached Thumbnails



This is how I mounted my microphone. I used the small clip and ran the wire down the drivers side "A" pillar to the headunit.



INSTALL of aftermarket Head Unit

The MCS uses an OEM plastic sleeve that is affixed to dash trim piece so to remove this appears to be a lot of work so I left it in place. First you have to cut off the two plastic guide ears that protrude at the rear. I used a Dremel tool with a right angle cutting wheel but I'm sure a small back cut hand saw would work as well. Now it gets interesting. The sleeve also has four raised plastic clip points toward the front. They tend to squeeze the pioneer double din cage just enough to make it a bitch to slide the head unit in the cage. The brackets and screws on the head unit hit the cage edges. So I took my trusty Dremel tool with a sand paper wheel and ground these down. Now the cage should slide right in but the side angles that receive the four head unit small screws hit the forward raised part of the dash trim. You have to put the din cage in a vise and file these

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down a bit, then the din cage will fit and seat perfectly in the opening. The ears on the din cage can't be bent into the opening due to the solid plastic sleeve so you need to drill it at the top and bottom and screw it in place. You can't screw it in the sides as the screw heads will hit the head unit. But the top and bottom of the cage have embossed spacers so even pan head screws will work. Finally the side brackets on the head unit again hit the trim the same as the cage. So you need to remove them from the head unit and file those down as well. At this point the head unit should fit perfectly in the opening. I'll discuss the trim cover at the end.

Now you need to get the feed line from the two antennas fished through the dash opening. I elected to mount both the navigation and the XM antennas on the dash. The navigation antenna can actually be mounted under the dash as long as there are no metal parts above it and it has line of side to the sky through the windshield. Most of the people over at www.avic411.com are using this method with great success. I couldn't find a good spot under the ML dash but will most likely look for a spot at a later time. Also the XM antenna doesn't work as well under the dash so I knew that at the very least I would have to mount that on the dash so I just figured at this time I would sit both up there. Anyway, to mount them on the dash you need to remove the black under dash cover on the driver side. It's easy just a few screws and a few large plastic screw clips and it pops right out. Don't forget to disconnect the parking brake harness. Then I simply ran both feed lines from MCS dash opening under the dash up the dash by the A-pillar. The small side dash piece pops out easily to help in your routing. Then I just tucked both wires into the slot where the dash meets the A-pillar. Then the wires get pushed down where the dash meets the windshield and both antennas sit on top of the dash at the center. The Navigation antenna has a 2" square ground plane sheet that has a sticky back. That's it with perfect XM and Navigation reception. All the Navigation satellites are seen and XM has a very strong signal.

Now to install the XM module. This is pretty much plug and play. Just plug in the bus and data cable as should in the instructions. I spliced the ground to the main harness ground we made up

earlier and spliced the constant [12_volt](#) to the constant 12 volt in the harness as well. Don't connect the ACC or switched 12 volt on the XM module it's not needed when using a pioneer head unit. For mounting I simply pushed the module through the MCS opening and tucked it securely down behind the console.

Now you can plug the harness together and connect all the cables. You need an adaptor for the AM/FM antenna. I never disconnected the battery negative lead. This was probably not a good move but I completely checked all my connections with a multi meter prior to hooking everything up and the fact I wasn't hardwiring anything and just plugging in the modular connector I wasn't worried. Once everything is connected I suggest powering everything up for a check out before sliding in and screwing in the head unit. If everything is operating correctly and you have your entire speaker out puts correct go a head and slide it in and screw it in place.

The final step is to install the ABS plastic trim piece. This piece needs some sanding to fit. It too hits the console trim. I used my palm sander with some [100 grit](#) paper and sanded a bit off both sides until it cleared the trim. The problem I had was I needed to remove so much material to make it fit correctly you can now see the edges of the mounting screws a bit. It looks pretty darn good but not perfect so I think I'll bring by the local [automobile](#) audio shop and have them fabricate up a custom [face plate](#).

Anyway I would like to again thank everyone here and over at [avic411](#) for the help and tips and hopefully this write-up will help others. I'm sorry for no pictures the wife got my Nikon in the divorce and the pictures I took with the video camera suck. The picture for the by-pass hack is courtesy of [avic.411](#). If you have any questions please feel free to post them or email me.

OFFLINE

QUOTE

01-12-2009, 06:24 AM

#4 (permalink)

[JoeE46M3](#)
BenzWorld Senior Member

Date registered: Nov 2007
Vehicle: 2005 ML350SE
Posts: 421

Awesome work! Someone should make this a sticky as the process is about the same for any double din!

Good work!



2005 ML350 SE
20" MB CLS REP WHEELS
8000K XENON

OFFLINE

QUOTE

01-12-2009, 09:52 AM

#5 (permalink)

[j3cubcapt](#)
BenzWorld Member



Date registered: Nov 2005
Vehicle: 2003 ML500 & E320
Location: Dallas Texas
Posts: 155

Thanks Joe, but the credit goes to you and the others that helped me so much. This is just my attempt at "Giving Back"

Will

OFFLINE

QUOTE

01-12-2009, 02:03 PM

#6 (permalink)

[frets.217](#)
BenzWorld Member



Date registered: Sep 2007
Vehicle: 1999 ML 320
Location: Granite Bay, CA
Posts: 82



Shoot. I really wish this was posted when I installed my aftermarket HU. Awesome post. x2 on the sticky.

-Ryan

White 1999 **ML320**
-22" MKW m54 Wheels, Nitto [tires](#)
-Pioneer DEH P500UB Receiver, Kenwood Excelon KAC-X10D Amp, ARC12D2 Subwoofer
-Uniden Pro 520XL CB Radio w/ 25 watt PA speaker =]

OFFLINE

QUOTE

03-19-2009, 02:15 AM

#7 (permalink)

[Alex_GT](#)

Any pictures of completed install?

BenzWorld Member



Date registered: Feb 2006
Vehicle: 2001 SL500
Location: Raleigh, NC
Posts: 192

OFFLINE

2001 SL500 Silver
Some dream to drive it, Some enjoy driving it

QUOTE

03-19-2009, 05:46 AM

#8 (permalink)

[Bogie](#)

BenzWorld Elite



Date registered: Aug 2006
Vehicle: 2002 ML 500, 1994
Ford Explorer donated to
Doctors without Borders
Location: Boston, MA
Posts: 2,126

OFFLINE

Quote:

Originally Posted by **j3cubcapt** :
You WILL NOT be able to use the [Bose Amp](#), CD Changer or Sub.

Why not the sub? I'm using my sub! I have the pioneer AVIC Z3. ???

QUOTE

03-19-2009, 02:30 PM

#9 (permalink)

[chris0055](#)

BenzWorld Member



Date registered: Sep 2003
Vehicle: ML350
Location: Vancouver
Posts: 274

OFFLINE

Hey, its really nice to have this writeout.
I plan to put on a F90BT as well by myself but my 03 350 doesn't come with [Bose amp](#) and etc. I'm wondering if its the same set up as described in the article. Thanks

Patrick W.

QUOTE

03-19-2009, 03:38 PM

#10 (permalink)

[j3cubcapt](#)

BenzWorld Member



Date registered: Nov 2005
Vehicle: 2003 ML500 & E320
Location: Dallas Texas
Posts: 155

OFFLINE

Quote:

Originally Posted by **Bogie** :
Why not the sub? I'm using my sub! I have the pioneer AVIC Z3. ???

I did not know how to use the FI Bose Sub. I found the OUT wires, but I had no idea how to wire IN to that amp.
I really only listen to talk anyway and when I do listen to tunes, they are not Cranked, so it works find for me!

Will

QUOTE



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Help with Pioneer AVIC-D3 Install	gsj224	W163 M-Class	2	03-30-2007 03:15 PM
Anyone install a Pioneer AVIC-N2 ???	jjj0923	Audio & Telematics Forum	0	08-10-2005 06:15 PM

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