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Info/mods for IC-706

```
#####
New yellow wire disconnect and reattachment to vco switch bank works!!!!
This mod is great thanks for everyone's help out there!!
#####
```

I have an Icom IC-706 and did the mod. remove the yellow wire (4th from the edge of the plug in connector) on the top side of the IC-706 right above the FL-30 SSB filter. The yellow wire controls either switching in the 120Mhz LP filter or the 2 meter (pseudo HP filter).

If you just disconnect the yellow wire , the sensitivity increases above the 148-200 Mhz region. I also noticed the FM broadcast sensitivity went down greatly, to over come that, the yellow wire routed from the top side back to the bottom side and attached the VCO switch points (see note below). The +5Volts logic high from the plated hole next to J8, allows the LP 120Mhz to come back when the radio is tuned below 129Mhz.

I did this mod and it works great!!!!

As far as FM Broadcast intermod in the Aircraft band, I noticed the IF is a little overdriven into compression, so I turn the preamp off (green to no light---preamp switch), and noticed no difference in sensitivity, intermod in aircraft band disappeared.

Running the preamp in the Aircraft 118-129 does not really help sensitivity, even though the S-meter shows higher signal levels (jumps around allot due to saturating IF when signals are not there!!!) the noise floor actually, degrades, thus I leave the switch (no preamp-black instead of green).

Leaving it on green is just fooling yourself, driving the IF into saturation, with worst dynamic range.

I hope someone from Icom reads this, with this mod, now I can say the rig now covers the 30Khz - 200Mhz, rather than the modified statement 30Khz - 120 Mhz.

Now , I am very happy with the receive performance, leaving the yellow wire, and not connecting it to the VCO switch bank logic high point near J8, allowed me to hear 2 meter repeaters in the 82-83Mhz range, and poor FM broadcast reception.

Now connecting it to the VCO switch bank, the radio performs to my satisfaction, hearin weather at 162, forestry at 171, TV audio near 200Mhz and remembering to turn preamp off in 118-129 aircraft region, no 2 meter images/mixes any more in 82-83Mhz area from 2 meters. Can comfortable listen now to FM broadcast in the 88-108Mhz area. I now have no real complaints about the the IC-706.

Having fun with mine, traded in my Kenwood TS-50, and no complaints, don't even miss the TS-50. THE IC-706 is a real great rig.! Have fun with your 706's .

ICOM, I HOPE YOU SEE THIS, I THINK THIS MOD IS VIABLE AND SHOULD BE INCORPORATED FOR NEWER ICOM IC-706's!!!

73
Mike
W6TRW

(Cecil A. Moore~) writes:

The fourth yellow wire seems to control a lowpass/highpass 120 MHz filter. In the standard configuration the highpass filter is used only on 144-148 MHz, every other frequency uses the lowpass. Anyway, if you want to listen to frequencies above 120 MHz this mod is very useful. It does even remove most of the FM band intermodulation. I just don't understand why Icom has not put the switching limit on 120 MHz instead of 144/148.

Does this mod affect HF or 6m? After the mod, what frequencies use the LP and what frequencies use the HP filter?

The mod affects only frequencies above 60 MHz. If you just cut or remove the yellow wire, the HP or actually 2m band pass filter is used all the time.

Last night I took the loose yellow wire and connected it to a VCO control switch transistor (?) on the lower PC board. Now I have the LP filter in use between 60 and 129 MHz and the 2m band pass between 129 and 200 MHz.

There are five SMD transistors on the lower PC board just behind the "MENU" button. The one in the middle controls the VCO that is in use from 60 to 129 MHz. The single pin has 5V when within this range.

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There is a trace from this pin to a plated-through hole near J8.

This is a good place to connect the wire. (I haven't even seen the schematic so cannot say if this is the best way to do it.

But it works for me.)

129 MHz seems to be quite close to the cross-over point of the LP and 2m BP filters. Here is a listing of the (NBFM) signal strength needed to "light" the first segment on the S-meter on each frequency:

MHz	uV / LP	uV / BP
125	.8	2
135	12	.5
145		.15
155	30	.5
165		3
175		11
185		140

After the mod I can listen to the Helsinki airport on 134 MHz but the Meteo on 128.4 is still drowned in intermod from the FM BC band.

>thanks and 73, Cecil, KG7BK, OOTC (not speaking for my employer)

Neither am I. Proceed at your own risk etc. And have more fun with the 706!

IC-706 Expanded frequency

If you think to change your new little rig into a UFO read following info. Read everything and wait.

"Notice : We can not guarantee specification when expand frequency"

To find every detail you should have the service manual. At this moment I have to deal with some bad copy's. I think they went for 21 times into a Xerox copy.

By cutting diode D59 only, "nyea what's up doc?" does not work.

So here are the results (read the above notice) to leave your UFO on the table.

**** Cut the D59 diode on main Unit. (TOP SIDE of P.C. Board) **** Where do you find this little thing?

If you can locate the Filter option place you will see in the middle of the P.C. board 5 little things on one line and this is what you're looking for. But white.

Maybe this can help you.

.W4. <---JUMPRE WIRE

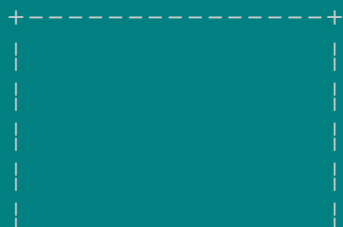


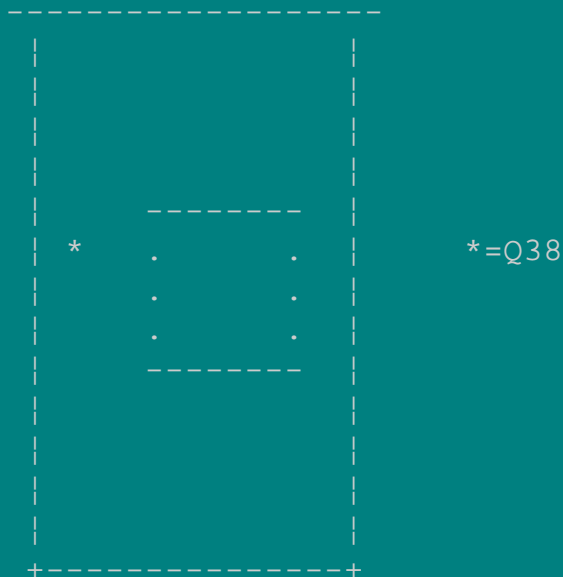
**** If you have a USA-version you need additional modification. ****

**** Cut D60 and jumper wire W4. ****

Next lets find Q38 or R353 on MAIN UNIT (top side of P.C. Board)

You can find this when you are already in the rig, you have a large metal cover (like a box, probably there is a lot of money inside HI)





****Then you have to cut the P.C. board at a certain point on the bottom side.****

It is not so far away from H2, H6 and IC 32

****And then you have to add a jumper wire from pin 11 of IC32 and a certain point on the bottom of the main unit.....**

So only cutting D59 this is a joke. I can even say a BIG joke.

To explain you the total modification you need a service manual.

In a few day's (around 100 HI) I'm able to put the schematics on packet.

I will try and hopefully you can do something with it.

So don't jump around in your nice equipped shack, do not make a UFO out of your new 706 just wait and I can see what I can do.

IC706 - spare 0.3A

Dr Oms

If you can spare more than 0.3 Amps from battery on /p operation switch off backlight of yellow display (Initial Set Mode, item 5.) This helps much, i have only abt 1.1 Amps for receive now I did not find any info in the manual

Best of luck

MARS/CAP Modification for ICOM IC-706

Tools required:

- #0 Philips head screwdriver
- 10 - 15 watt pencil tip soldering iron
- Magnifying glass
- Tweezers

Remove the TOP cover by removing three Philips head screws on the top and one on each side. Move the speaker bracket out of the way. Locate D-59, this is a three terminal SMD diode in an SOT package, about 1 x 3 mm (with the radio front panel oriented towards you, D-59 is located in a row of SMD diodes just to the right of the ribbon cable header above the 9 MHz SSB filter FL-30. There are pads for 5 diodes with only three installed. D-59 is the second from the left).

Using tweezers and a low-wattage soldering iron (and magnifying glass, if necessary) remove D-59 by applying some heat to the single leg side of the device while lifting gently, then apply heat to the other two legs and removing the device. Be careful not to apply too much heat, not to rip or burn any traces or not to leave excess solder on the PCB.

Replace the speaker bracket and top cover. Apply power and reset the microprocessor.

TX = 1600 kHz - 54.00 MHz and 118.000 - 174.000 MHz

Icom IC-706 Review

ICOM IC-706 HF/VHF AMATEUR RADIO TRANSCEIVER

Product Review, Hints and Tips, and Modifications

As Of: December 28, 1995

by Randall Rhea, KG0HW

Overall impression

"Too good to be true". This was my understandable reaction to Icom's announcement of the IC-706 amateur radio transceiver last summer. It looked like my dream mobile rig: very small size, detachable face plate, all HF bands, FSK, 6 meters with 100 watts ... AND 2 meters, all in one rig? It sounds too good to be true, but after using this radio in my car for about a month, I can tell you that this radio is real. Although the rig is not without its faults, Icom has produced an innovative masterpiece. The rig does just about everything as advertised. It is an easy-to-use radio that replaces several other radios that I was operating in my car.

Over the Christmas holidays, I took a couple of long car trips here in Texas. The 706 was installed under a car seat, leaving plenty of room for luggage and packages. (Do NOT block the top of the rig. Leave room for air circulation. The rig gets VERY hot when transmitting!) The face plate was installed just below the dash within easy sight when driving. I used headphones, so my wife and daughter could listen to CDs while I was working

DX. The headphone plugged into the face plate. I used a 7-foot whip mounted on the trunk of the car tuned for the SSB portion of 6 meters, my favorite band. The radio was a pleasure to use, even while driving.

During a nice opening on 6 meters on the evening of December 27, I worked several new grid squares in the midwest and Arizona. I also worked North Dakota for the first time. I was able to work a station in Mexico City quite easily, despite the pileup. That 100 watts sure helps. (I previously used a 10-watt rig.) The sensitivity of the receiver, although not quite what the "pros" would want, was quite adequate. Noise from the car engine was only a minor problem; the noise blanker was effective for SSB.

During the trip I also listened to a football game on TV channel 2, listened to truckers' traffic reports on CB channel 19 (27.185 MHz), worked a couple of 10m stations during the sporadic E opening on December 27, worked a couple of 20m stations, listened to WWV on 2.5, 5, and 10 MHz, eavesdropped on some interesting baby monitors and cordless phones on 49 MHz, listened to NOAA weather forecasts on 162.55 MHz, monitored some aircraft traffic, and did some rag chewing on 2-meter repeaters. Not bad for ONE radio!

PRICE

I paid \$1249 for mine at Tucker Electronics in Dallas. They told me that they have sold about 200 of them in six weeks, making the IC-706 their best selling rig of all time. They are getting them from Icom in lots of 20 and are having trouble keeping them in stock.

Prices for accessories are pretty high. There is little profit margin in the box, so they make up for it with high accessory prices. The cable to allow for front-panel detachment is \$48.

UNIQUE FEATURES AND INNOVATIONS

See www.icomamerica.com/icom/amateur/hf/#IC-706 for a list of features.

- The smallest HF rig on the market (similar in size to the Kenwood TS-50)
- Detachable face plate with a jack for a speaker or headphone. The mic plugs into the face plate using a plug similar to a modular telephone plug. (A spare plug is included.) The cable to allow for this detachment costs extra.
- Full HF/VHF transmit coverage from 1.6 to 54 MHz and 144-148 MHz (the rig transmits only on the ham bands out of the box, but an easy modification unlocks the transmitter, see below)
- General coverage receive from 50 KHz to 163 MHz (requires modification, see below) Rig receives up to 200 MHz but with poor sensitivity above 162 MHz even with the modification. You will be able to receive: long wave, AM broadcast band, short-wave broadcast, all amateur bands in all modes from 160m to 2m, FM broadcast band (wide FM), aircraft (118-136 MHz AM), VHF from 30 MHz to about 162 MHz, US TV channels 2 through 6, NOAA weather at 162 MHz.
- 6 meters and 2 meters, all-mode
- 100 watts on HF and 6 meters (10 watts on 2 meters)
- Innovative, easy-to-operate menu system. It becomes quite easy and natural to use after reading the well-written manual for about an hour. (In contrast to my Yaesu FT-470 HT, which I still cannot figure out.)
- The manual is very well written, with lots of easy-to-understand diagrams.

- Simple, but useful and configurable band scope. (Previously available only on very expensive rigs like the Icom 781.) This allows you to examine nearby frequencies for activity.
- Split frequency operation appears complicated at first, but the rig's "quick split" mode makes it fast and easy.
- Built-in electronic keyer at no extra charge. The Up/Down buttons on the mic can be used as a paddle. This has rejuvenated by interest in CW. I worked a couple of slow CW stations on the novice portion of 80m, which made me remember how fun CW is.
- FSK (Nice feature for this price range)
- DTMF and programmable offset for repeaters and split frequency work
- Good audio reports from contacted stations. A station on 3.85 MHz reported "a very good signal for a mobile". A 2m FM station reported "very good audio ... so that's the 706 I've been hearing about."
- Works very well with the AH-3 antenna tuner. This is the Icom HF (1.8-30 MHz) random wire tuner that worked with the 725. The tuner is mounted under the trunk lid of my car with cable ties. It can also be mounted outdoors. It will tune any 8-foot whip or wire for any HF band. (You need 40 feet for it to tune to 160m.) You can press a button to enable the tuner, or the tuner can fire off automatically if your SWR is too high. With my 7-foot 6-meter whip, I can tune to any HF band above 3.5 MHz. That means I need only one simple antenna for HF and 6m.
- 100 memories that store frequency, split offset, mode, and FM tone.
- Two antenna connectors: one for HF/6m and one for 2m. The connectors are switched at 60 MHz.
- Jacks for remote speaker and/or headphones on both the face plate and the back of the rig.
- Multifunction meter: S meter, SWR, relative power output, ALC.

DRAWBACKS/FLAWS

- Extended VHF receive requires modification (see below).
- Poor sensitivity above 162 MHz.
- Noise blanker does not work on AM. Very irritating pulse noise on AM while the car's engine is on. The blanker works well on other modes (except FM, where it is not needed). Not good for listening to AM while driving. A rather serious flaw in my opinion, since my \$40 CB has a noise blanker that works well.
- Poor QSK (full break-in) capability. Not recommended for high-speed CW operators who want QSK. Use semi-break-in instead.
- No CW narrow filter. You can install one as an extra-cost option or use an external CW filter or DSP unit.
- The built-in speaker provides surprisingly good audio for its size, but you will probably want to use an external speaker. The speaker can be connected to the face plate or to the rig itself.

- Automatic repeater offset is not programmed into the rig. You need to program -600 or +600 yourself through the menu system. This is not a problem if you store your favorite repeaters into one of the 100 memories.
- The S-meter is inaccurate below S9. Above S9, it is quite accurate.
- High prices for accessories (typical of just about all other vendors)
- The AH-3 antenna tuner is shipped with an unshielded cable, which picks up a lot of auto engine noise. You need to make your own shielded 4-wire cable. The AH-3 also blocks signals above 54 MHz. It also only works for HF, not for 6m or 2m.
- Expect performance and receiver sensitivity similar to other rigs in this price range. This is a low-end rig in terms of price. For price vs. performance, this is probably the best amateur radio of all time. However, it will not outperform your \$4000 rig. You probably won't win contests with it. You will have a lot of fun and own a nearly ideal rig for mobile work.

HINTS AND TIPS

1. Take time to read the manual. The menu system will be bewildering unless you read the manual. Once you get used to it, you will find the rig to be amazingly easy and fun to use.
2. You need to set the mode to wide FM to receive FM or TV broadcasts. Tune to the station, press the MODE key until the front display shows FM, then press and hold the MODE key for 2 seconds. WFM will appear in the display, and you will hear the station with nice audio.
3. Don't use the noise blanker on AM. It will not be effective and may distort your audio.
4. Don't use the QSK feature.
5. The rig gets very hot while transmitting. Keep the top of the radio clear to allow air circulation.

Enables out-of-band transmit for 1.6 MHz to 54 MHz

This does not enable extended VHF transmit; a modification for this may be available soon. This does not enable AM or FM broadcast band transmit. Your memories will be cleared after this modification, since you need to reset the CPU.

1. Open the top of the radio by removing the 3 top screws and 2 side screws. Look at the radio from the with the front panel facing you. screws.
2. Gently pull up the speaker and set is aside without damaging the speaker or the wires that attach it to the rig.
3. Note the silver rectangular box near the middle of the PCB marked something like "9 MHz SSB Filter".
4. Move your eyes up from this filter toward the back of the radio. Just before you get to the "D 108" marking, you will see two tiny diodes, two blank spaces, and one additional diode. They look something like this:

D108

[XX] [XX] [] [] [XX]

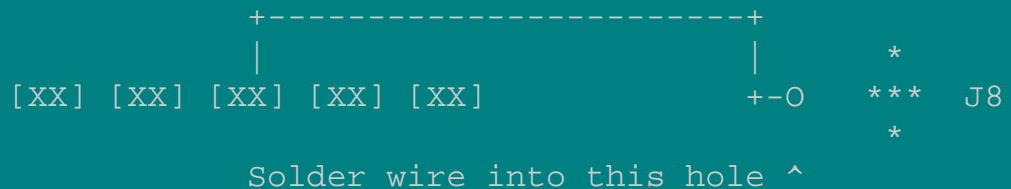
Remove this diode ^^^^

5. The second diode from the left needs to be removed. I did this by crushing it with long-nosed pliers. You can also heat it with a low-wattage soldering iron and pull it up with tweezers. Be sure not to damage the other diodes or the PCB. Be sure that you don't apply too much heat, since the heat can damage the PCB and the other diodes.
6. Re-assemble the radio. Reset the CPU by pressing and holding down the UP and DOWN buttons on the front panel and pressing POWER.

More sensitive transmit for 2 meter

Enables more sensitive transmit above the 2 meter band. (148 to about 162 MHz; after that, sensitivity drops off.) Keeps sensitivity for the FM broadcast band.

1. Open the top of the radio by removing the 3 top screws and 2 side screws. Look at the radio from the with the front panel facing you.
2. Note the silver rectangular box near the middle of the PCB marked something like "9 MHz SSB Filter".
3. Move your eyes up from this filter toward the back of the radio. Follow the ribbon cable up. Notice a wide white connector with several colored wires in it on the back of the PCB.
4. The fourth wire from the left is a yellow wire. Cut this wire. Rather than cutting it, you can remove the connector, stick a paper clip in the side of the connector under the wire, push it in, and pull the wire out. Be careful not to remove the other yellow wire.
5. Re-insert the connector back to its original place on the PCB.
6. Open the bottom of the radio. You will again need to remove 5 screws.
7. Look at the radio with the front panel facing you. Note 5 tiny transistors behind the MENU button. Follow the trace from the middle transistor to a hole just to the left of jack J8.



8. Solder a small wire into this hole. Be careful not to apply too much heat; use a low-wattage soldering iron. Be careful not to damage the PCB or the grey cable coming out of J8. Use a magnifying glass.
9. Run the other end of the wire you just soldered to the front of the radio and attach it to the yellow wire you just cut.
10. Re-assemble the radio.

IC-706 60 MHz to 200 MHz bandpass filter

Ok, here's the computer simulation info I promised. I modeled the 60 MHz to 200 MHz bandpass response. To say the least, it sucked rocks. There are two poles, one at about 136 MHz and the other at about 160.5 MHz. Response is nice and flat from 60 MHz to 120 MHz with less than 4 db of ripple, but it takes a dive from there. In the 130 MHz to 170 MHz range, the loss is at least 36 db, rising back to only 30 db at 200 MHz. Image rejection at 280 MHz is only 26 db.

Now the ideal fix is to change the inductors so that L49 is 27nH, L40 is 22 nH, and change C152 to 30pF. That gives a lovely pass band across 60 MHz to 200 MHz, and gives strong image rejection at 280 MHz and up, with one of the nulls falling right on that frequency. The factory ought to do that.

Unfortunately, examination shows these coils aren't easy to modify. So there's another way that still gives a pretty good response. If you remove C53 and C153, you'll get full response, though with a dip of 4 db in the 160 MHz to 180 MHz range, and only 26 db of image rejection at 280 MHz. But if you increase the value of C152 to 32pF by tacking the removed C153 across it, response flattens and tightens in the upper VHF range, and image rejection improves to 31 db at 280 MHz. That's about as good as we're going to get without replacing L49 and L40 and C152 with the recommended values.

Here's the ARRL Radio Designer file for the filter.

```
*****
*ARRL Radio Designer v1.0
*IC-706 60 MHz to 200 MHz band pass filter
*****

Blk
**Component data inductors

L22:1.2uH
L49:82nH      ;ideal 27nH
L40:68nH      ;ideal 22nH
L25:0.15uH
L26:0.18uH
L27:1.2uH

**Component data capacitors

C51:.001uF
C154:20pF
C153:0pF      ;was 12pF
C152:32pF     ;was 20pF
C53:0pF       ;was 20pF
C151:24pF
C52:18pF
C54:220pF
```

C55:22pF

C56:82pF

C57:27pF

**Node list

IND 1 0 L=L22
CAP 1 2 C=C51
CAP 2 0 C=C154
IND 2 3 L=L49
CAP 2 3 C=C153
CAP 3 0 C=C152
IND 3 4 L=L40
CAP 3 4 C=C53
CAP 4 0 C=C52
CAP 4 5 C=C151
CAP 5 6 C=C54
IND 6 0 L=L25
CAP 5 7 C=C55
CAP 7 8 C=C56
IND 8 0 L=L26
CAP 7 9 C=C57
IND 9 0 L=L27
BPF:2POR 1 9

END

**Frequency block

FREQ
ESTP 50MHz 300MHz 511
END

Icom IC-706 Extended RX mod

Icom 706 doesn't out of stock listen to frequencies over 148MHz, although that is advertised. At Least mine didn't.

Studying the schematics I noticed a front-end filter, that should be operating in the range of 60MHz - 200MHz. I studied the filter with a program and noticed, that the pass band was 60MHz - 140MHz !! The upper end was blocked out.

I changed the circuit in a way that enables the radio to work as advertised by removing Capacitors C53 and C153. Now the filters upper edge is around 230MHz.

This modification doesn't affect 2m RX in anyway, because 2m has its' own, tight front-end, that is used instead of the modified filter, when in 2m band. HF and 6m aren't affected either.

The Capacitors are found in the PA UNIT board, behind the external speaker connector in a relatively easy place.

The job requires cautiousness because the components dislike static and excessive heat.

This modification works, if the radio isn't already modified with the modification, which puts 2m front-end in use in frequencies above 144MHz.

At Least My unit worked well with this modification. Measured from my IC-706:

Frequency	Sensitivity (micro volts /20dB SINAD)
60-140	0.14
144-148	0.12
150	0.18
155	0.15
160	0.2
165	0.3
170	0.4
175	0.6
180	1.5
185	1.5
190	>100mV -- deaf!
195	5
200	29

ICOM 706 MKII Extended transmit mod

This file may be freely distributed as long as it remains intact, with no modifications, additions, or deletions.

DISCLAIMER:

I assume no responsibility for damage or inaccuracies contained in this document. In other words, USE THIS AT YOUR OWN RISK. It worked for me, however I don't know if it will work for you.

WARNING #1: This mod requires the ability to remove surface mount diodes. Only those who are qualified to do this should attempt this mod.

WARNING #2: This mod seems to erase all memory channels, etc. You may want to save this info for reprogramming.

Disassembly:

1. Face the front of the radio towards you.
2. Remove the three screws in a row across the middle of the top of the radio.
3. Remove the two screws at the top rear (on the sides) of the radio.
4. Pry the top cover off from the back.
5. Disconnect the speaker at the connector.

Modification:

6. Near the top rear of the main circuit board, there is a small, oblong metal can. Directly below the right side of this can is two surface mount diodes with a white silk-screened box around them. There is also what appears to be a circuit board part number just to the left of it (mine says B4916D). Remove the LEFT diode in the box.
7. To the left of this, there is a test point marked CP3. Just to the left and above this test point is another box with two **vertically** mounted surface-mount diodes (Note: there is also a place for 5 more **horizontally** mounted diodes, with 3 installed). Remove the LEFT vertically oriented diode.

Reassembly:

8. Reconnect the speaker.
9. Put the top cover back on. Insert the top cover tabs into the slots and lower into position.
10. Replace all of the screws.

My radio did not require a reset, however I did lose all of my channel memories. It seems to be able to transmit everywhere except below .5 Mhz. I have not tested the power output at all frequencies yet.

I hope this helps everyone who have been waiting patiently for this mod.

Any comments can be directed to me:

Len - KC2ADV

...

Modification:

6. Near the top rear of the main circuit board, there is an small, oblong metal can. Directly below the right side of this can is two surface mount diodes with a white silk-screened box around them. There is also what appears to be a circuit board part number just to the left of it (mine says B4916D). Remove the LEFT diode in the box.

7. To the left of this, there is a test point marked CP3. Just to the left and above this test point is another box with two *vertically* mounted surface-mount diodes (Note: there is also a place for 5 more *horizontally* mounted diodes, with 3 installed). Remove the LEFT vertically oriented diode.

For first, my circuit board part number is B4916F, i don't understand you what diodes i must cut off, explain me, my smd diodes looks like this:

```

                                O<>O 7
                                O   O 6
                                O<>O 5
J25                             O<>O 4
                                O<>O 3
                                O   O
                                1[]  [] 2
                                O   O
                                CP3
                                <__]
                                B4916F  8[]  [ ]9
                                O   O

```

Diodes: 1,2,3,4,5,7,8,9 are installed
Diode: 6 is not installed

My version is with Tone 1750Hz, European i think, RX 30kHz-200MHz, TX in amateur bands only, the serial number if needed is: 02101 bought in 18.06.97 as new in Poland.

Sorry for my bugs.

Can You type me what diodes ? I think 1 and 3.

Rafa´ SP6-1313WR

Info on the diodes from another European user:

```

d129
---- (d111 none)
d112
d113
d114

```

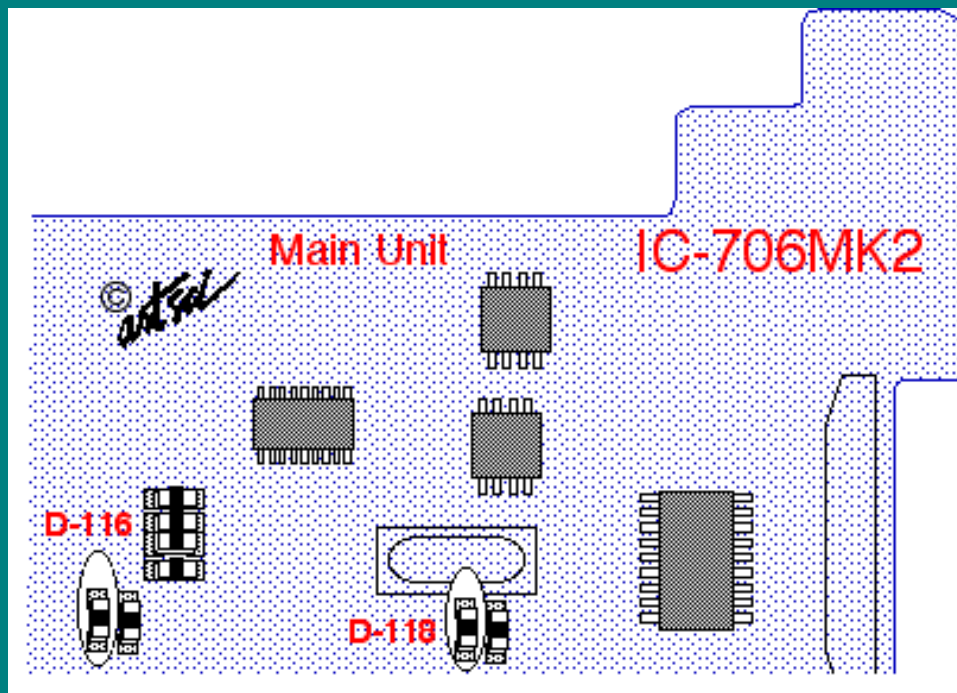
```

d d          d d
1 1          1 1

```

1 1
6 5

1 1
8 9



D116 and D118 are responsible for out of band TX. D115 and D119 enables RX from 30KHz to 200MHz. D113 is responsible for 6M RX and D114 is responsible for 6M TX. I do not have info about D129 and D112.

Special on IC706mkII

I have tried some special buttons on IC706mkII:

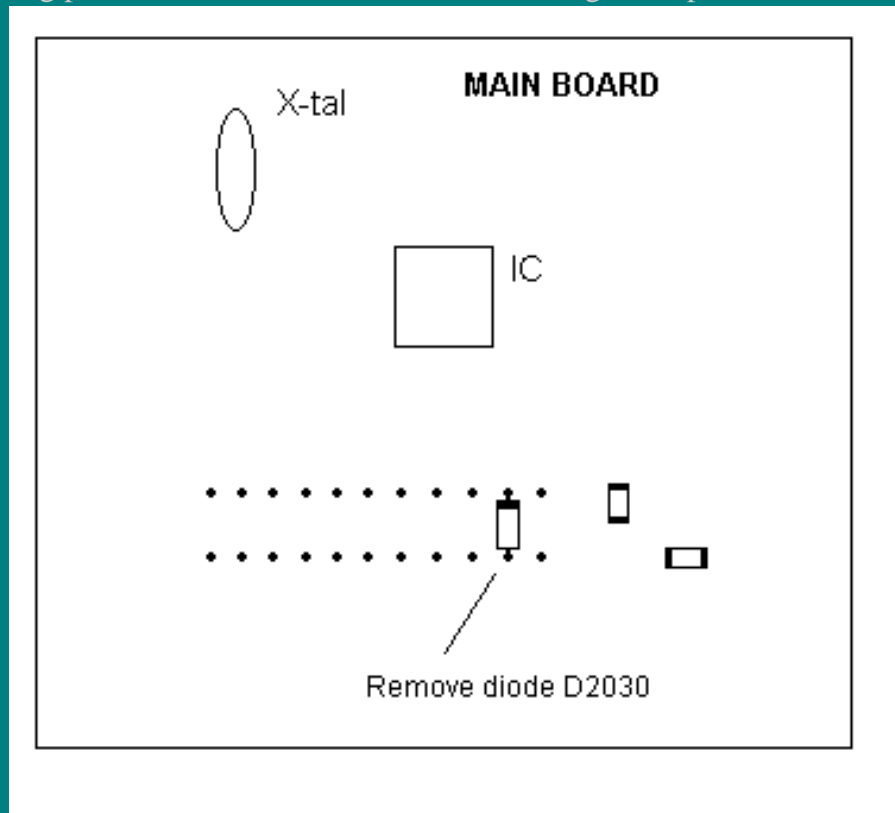
Push TS and DISPLAY while power up and you will see a strange power on check.

Push P.AMP/ATT and RIT/SUB while power up and you will be able to see SHIFT-ADJ on your 706mkII. Dont know what this is for, recalibrating ?

I think that these things even works on the older version of 706, dont know.

TX range expansion for IC-706MKIIG

TX range expansion is very simple. On MAIN BOARD under speaker near Xtal you can see two rows of solder dots for SMD components. Only on position 10 (from left) is diode (D2030), which is necessary to remove. That's all. After connecting power radio will be reseted and TX range is expanded.



Expand only mod for the IC-706MkII

HI ALL, as an owner of a IC-706MkII, I have noticed that there is no detailed photos of how to go about the mods on any of the mod sites, so I pulled my radio out of the car and I have taken some photos of the only mod that I was interested in doing to my radio,.....EXPAND RX /TX.

I hope that the photos will help all new owners and or old ones that have not been game enough to tackle the mod, its quite a simple mod to do as long as you have good quality desoldering equipment, if not then do not attempt it, take it to someone that has the gear.

If you follow the text file on this page by "Len SantaMaria, KC2ADV"

headed,.....Icom 706 MkII Extended Transmit Mod and use my photos as a reference then I do not think you can go wrong, my radio works like magic.

PLEASE NOTE THAT THESE MODS WERE DONE TO AN AUSTRALIAN IC-706MkII RADIO,.....AS FAR AS I CAN TELL THERE IS NO DIFFERENCE BETWEEN MY RADIO AND THE AMERICAN MODEL, IF ANYONE FINDS THIS NOT TO BE CORRECT THEN I AM SORRY BECAUSE I CANNOT

HELP YOU.

A PHOTO OF THE MAIN BOARD TAKEN FROM THE IC-706MKII SERVICE MANUAL



THE LEFT DIODE IN THE YELLOW SQUARES TO BE REMOVED

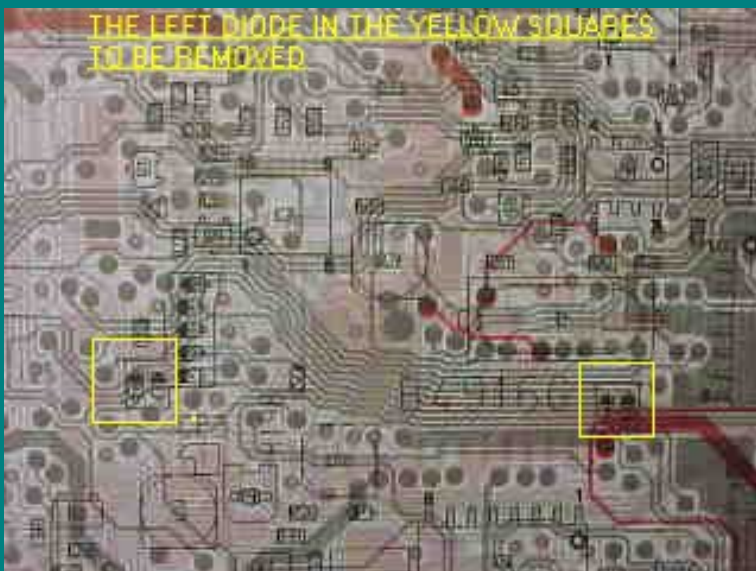
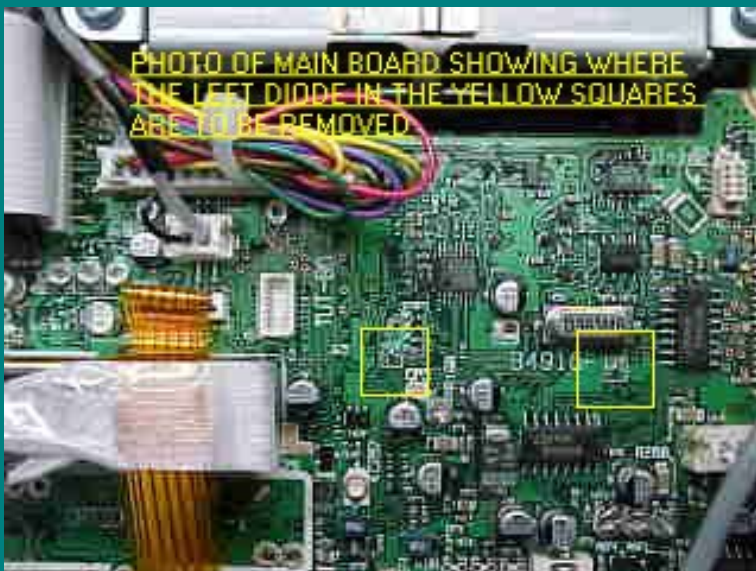
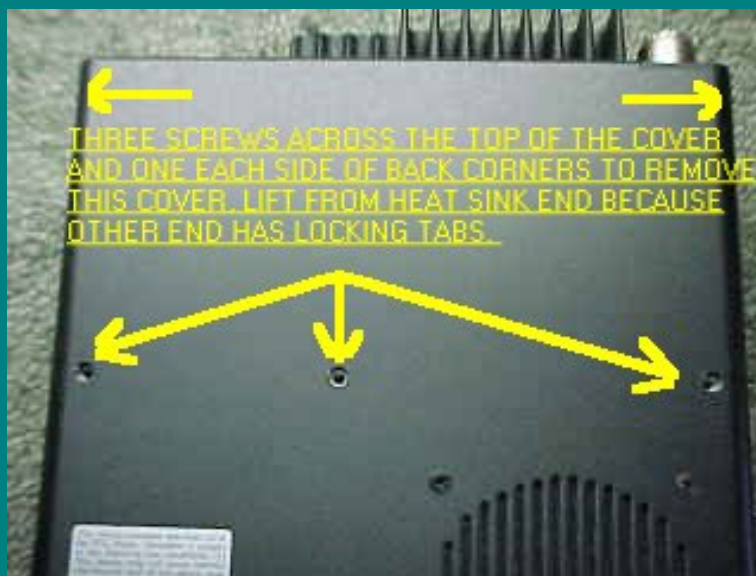
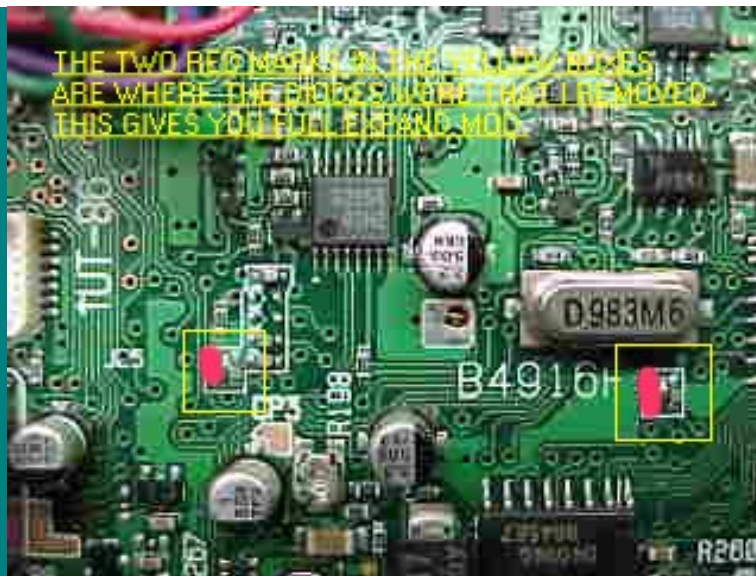


PHOTO OF MAIN BOARD SHOWING WHERE THE LEFT DIODE IN THE YELLOW SQUARES ARE TO BE REMOVED







This information and photos was supplied by David Spicer, VK7ZDJ.

Some tips.

Here is som tips take from www.gdierking.de/706/

Tipp: 1

Wenn Sie ausserhalb der Amateurbänder für Messzwecke ein Sendesignal benötigen - einfach die kleine Diode D2030, Mainunit, oben, ganz rechts in der Reihe, herausnehmen. Eigene Menuedaten wieder einfügen.

Tipp: 2

Mehr Dynamik in der Modulation bekommt man durch Einstellen des kleinen Widerstandstrimmer, direkt hinter der Frontwand, links, neben dem Quarzfilter auf der Mainunit, oben.

Einstellen: Menue, Modulationspegel auf 1, den Buchstaben "A" lange ins Mikrofon sprechen und gleichzeitig den Trimmer auf maximale HF einstellen. Wenn das HF-Signal abreisst - den Trimmer wieder etwas zurück drehen.

Tipp: 3

Die Sendeleistung auf HF kann mit dem Trimmer "HF TX power adj." leicht auf 150 W und auf 2 m mit dem Trimmer "144 MHz TX power adj." auf ca. 90 W eingestellt werden. Siehe Seite 63 in der Bedienungsanleitung.

IC-706, MKII, MKIIG xmit mods - tip

Ref Xmit Mods for 706s shown above

The xmit expand mod for the IC-706, MKII, MKIIG require removing very small diodes, these diodes are about the size of a flea, and require the use of very small tools.

I have done mods before but these are difficult.

After lots of thought I did my mod with an x-acto knife. I needed a magnifying glass and a new blade for the x-acto knife. I cut just the solder on one side of the tiny diode, making sure that is all I cut, then pushed up on the diode, the other side breaks loose from the board. I cut both diodes this way and it was easy and worked fine.

I could not find a soldering iron small enough to fit into tiny space available. Good luck.... Emory

IC-706 10 watt tune modification/An Icom IC706 Tune Trigger

Some assembly required

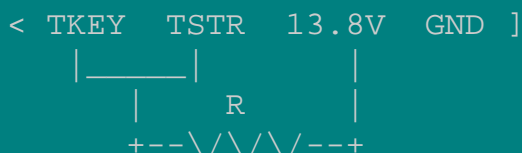
The ICOM IC-706 has a nifty feature built in to help the operator tune the HF antenna SWR. By pushing the TUNE button on the front panel, the radio switches to CW mode and transmits a 10 Watt carrier. This state last for approximately 10 seconds or the operator can terminate sooner by pushing the button again. This was designed to work with the Icom automatic antenna tuners. There have been a few circuits developed to fool the 706 into thinking there is a Icom tuner attached and produce the same tuning signal which can be used with a manual antenna tuner or many automatic tuners, some get quite complex.

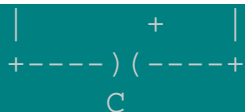
Well, being the cheap guy I am, and being one to tinker, I felt there had to be a simple way to do this. I began reading the various postings on the Internet. I went back to an e-mail exchange I had with Ed, W1AAZ in early April 1999 on Vartel's ICOM 706 Discussion Group. Ed explained the functions of the TKEY and TSTR pins on the "AH-3" connector on the 706.

The outcome was a simple RC circuit which I have built right on a Molex connector which plugs into the AH-3 jack on the back of the IC706.

CONSTRUCTION:

The (+) side of C is connected to the 13.8VDC pin. The (-) side connected to TSTR and TKEY which are connected together. Resistor R is in parallel with C. Below is a diagram of the AH4 connector on the back of the IC706 where the < indicates the pointy end of the connector (Pin 1 = TKEY). You can buy the Molex connector at Radio Shack (#274-0224).





The values I use are $C=1000\mu\text{F}$ 16WV $R=92\text{K}$ Ohms 1/8 Watt which result in 15 seconds of tune time. As you can see, these are tied in parallel. If you want to use a physically smaller capacitor such as 440 μF , you can adjust the time by raising R . The extreme values I found are:

$$2\text{K} < R < 3.3\text{M Ohms} \quad 10\mu\text{F} < C < 4700\mu\text{F}.$$

OPERATION:

Be sure to read the manual about the various Initial Settings that can affect the operation with a tuner connected, otherwise you may go into the TUNE mode every time you change frequency or push the PTT.

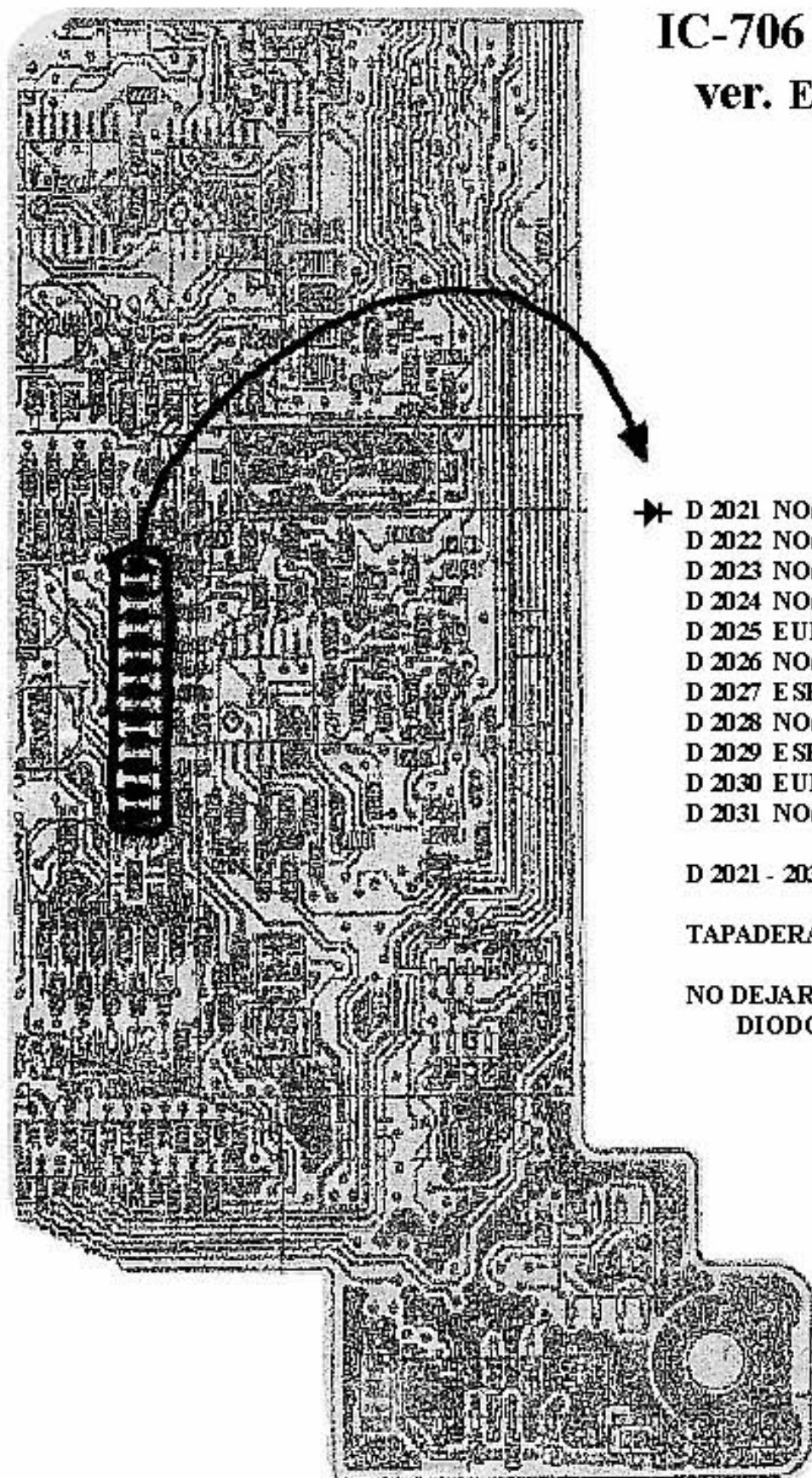
Turn off the radio and plug in the unit. Make sure you have some sort of load on the HF antenna connector. Turn on the IC706, the radio sees TSTR is high during boot up and thinks there is a tuner connected. Be sure the meter is in the SWR mode. Push the TUNE button. The TUNE light should flash counting the seconds and stay lit when finished, as stated in the manual. You may interrupt the cycle by pressing TUNE again.

If you terminate the TUNE mode early by pressing the button again, you must wait for the remainder of the time-out period to re-start. If you don't then the cycle is started over again when you press TUNE and you still must wait, but longer. This is why I have opted for 15 seconds instead of a possible 30 seconds. One way to reset the timer is by powering the IC706 off then on.

I have noticed false triggering when the supply voltage AT THE IC706 POWER CONNECTOR drops during transmit and C has not yet totally discharged. This is caused by the TKEY voltage dropping through the trigger point because the supply voltage drops while C is discharging. This lead me to upgrade my power supply cable so there is less voltage drop when I transmit.

ALTERNATE DESIGN:

You can eliminate the capacitor and the TKEY to TSTR connection if you want to manually trigger the IC706 into TUNE. You do need the pull-up resistor between TSTR and 13VDC to make the radio think there is a tuner present during power up. Then ground TKEY to trigger the TUNE mode as long as TKEY remains grounded.



IC-706 MKIIG ver. ESPAÑA

- ✦ D 2021 NO(NONE)
- D 2022 NO(NONE)
- D 2023 NO(NONE)
- D 2024 NO(NONE)
- D 2025 EUR ver. & ESP ver.
- D 2026 NO(NONE)
- D 2027 E SP ver. solo(only)
- D 2028 NO(NONE)
- D 2029 E SP ver. solo(only)
- D 2030 EUR ver. & ESP ver.
- D 2031 NO(NONE)

D 2021 - 2031 (DIODOS)

TAPADERA SUPERIOR

NO DEJAR NIGUN
DIODO

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