DECWARE

Zen Torii Mk5

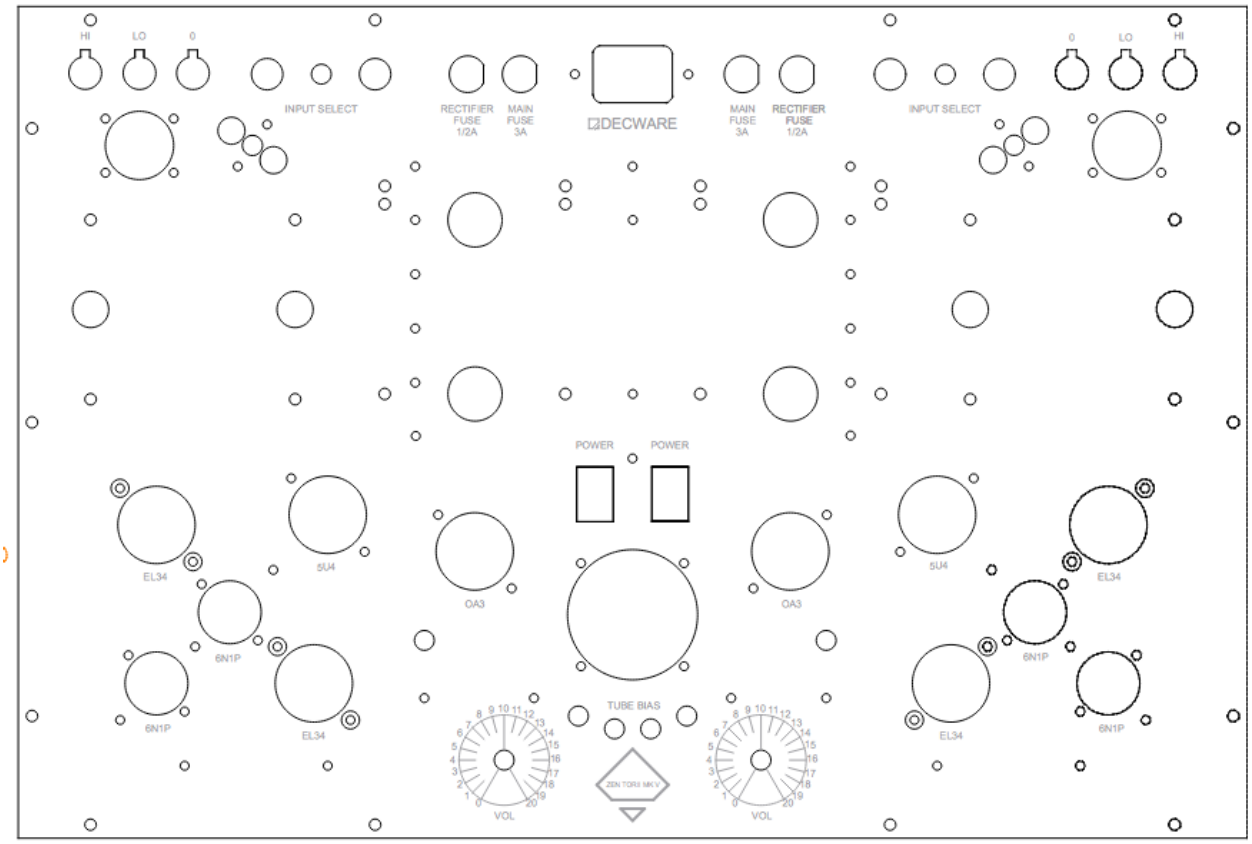
Dual Mono 12 Valve Class A Push-Pull Amplifier
With no negative feedback

Manufactured by High Fidelity Engineering Co.
WWW.DECWARE.COM

GETTING STARTED

The TORII MKV is two completely separate mono amplifies built side by side into the same chassis. The only common thing they share is the power cord and a current meter for the output tubes.

This amplifier was built in two halves. Each half is a mirror image of the other. This includes the jacks on the back and even all the parts on the inside. There are two power switches, one for each side.



TORII MK V– Top View of chassis only.

Binding Posts

The speaker binding posts with red washers marked HI and LO are the speaker (+) for different speaker impedances. The post next to it marked 0 with a black washer is speaker (-)

The amplifier is set up to handle LO impedances from 2 to 6 ohms and HI impedances from 6 to 16 ohms. You MUST spend time trying both the HI and the LO output with your speakers regardless of their listed impedance. Even if the sound doesn't change on some speakers, the imaging likely will.

Input Jacks

The Torii Mk V is set up with two pair of inputs with the selector switch located between each pair. The switch handle points to the active jack.

ON/OFF SWITCHES

There is a rocker switch located at the front just behind the meter to turn each side of the amplifier ON or OFF. Being a true dual-mono amplifier, you may use either side by itself without issues.

FUSES

There is a mains fuse (3A) and a rectifier fuse (1/2A) for each side. They are externally mounted for ease of access. If a mains fuse blows, the whole channel will go dark. If a rectifier fuse blows, only the OA3 tubes will go dark.

WHAT TO DO IF A FUSE BLOWS

The most common cause of a blown fuse is a bad tube. If you have a fuse blow, go ahead and replace it, but before turning on the amplifier, remove both rectifier tubes. Turn on the left side of the amplifier and wait to see if the two output tubes and the input tubes light up... remember it will take up to 30 seconds to see the red glowing filaments inside the tubes. If the tubes light up it means the power transformer for that side of the amp is OK. Turn on the right side and see if the same tubes on the right side also light up. If they do, that means the transformer on this side is also OK. Should either side cause the fuse to blow it means the power transformer for that side is bad and the amp will have to be serviced.

Assuming everything was successful in the paragraph above, it is time to see which tube is bad. Start by installing the rectifier tube back into the left side of the amp and turn the amp back on. If you don't see the tubes light up within 30 seconds, the rectifier tube is probably bad and the fuse has probably been blown again. Fuses blowing right away tell us that it is not the output tubes because it takes about 30 seconds for the output tubes to heat up enough to draw current. If an output tube was shorted, it would draw excessive current after about 30 seconds and depending on the severity of the short, blow the fuse.

Repeat for the right side of the amp and you should have discovered either a bad rectifier or bad pair of output tubes to be the cause.

Fuses rarely blow for no reason unless they are too small to handle the turn on surge when powering up the amplifier. The 3 amp mains fuses are sized to handle the turn on surge of either side in the vast majority of cases.

Rectifier tubes typically last for many years, but current production rectifier tubes are not typically the same quality as N.O.S. (New Old Stock from the 50's, 60's, 70's) so it IS possible for one to fail for no apparent reason. Nearby lightning strikes or power surges can

cause a rectifier tube to arc internally and thus blow the fuse. If this happens the rectifier tube may still work or may not.

INSTALLING TUBES

Using the diagram above you should be able to install the tubes in their correct locations. Remember the left side is a mirror image of the right side. On the smaller tubes it is wise to visually inspect the pins to be sure they are not bent. Inserting tubes with bent pins can damage your amplifier.

TUBE SUBSTITUTIONS

The 5U4 rectifiers can be replaced with 5AR4. 5U4 and 5AR4 typically give the best performance.

The Voltage regulation tubes OA3 are used to feed the input stage of the amplifier, and can not be changed except to another brand without changing the sound of the amp.

The input tube (6N1P-EV) can be substituted with a 6N5P (Russian Tube) if a better focused sound is desired with a touch less gain. Also you may use 6922, 7DJ8. Since there are two of these 9 pin tubes on each channel, you should understand that the rear one is almost always best served by the high current 6N1P-EV and the front tube is the one that can be changed for different voicings.

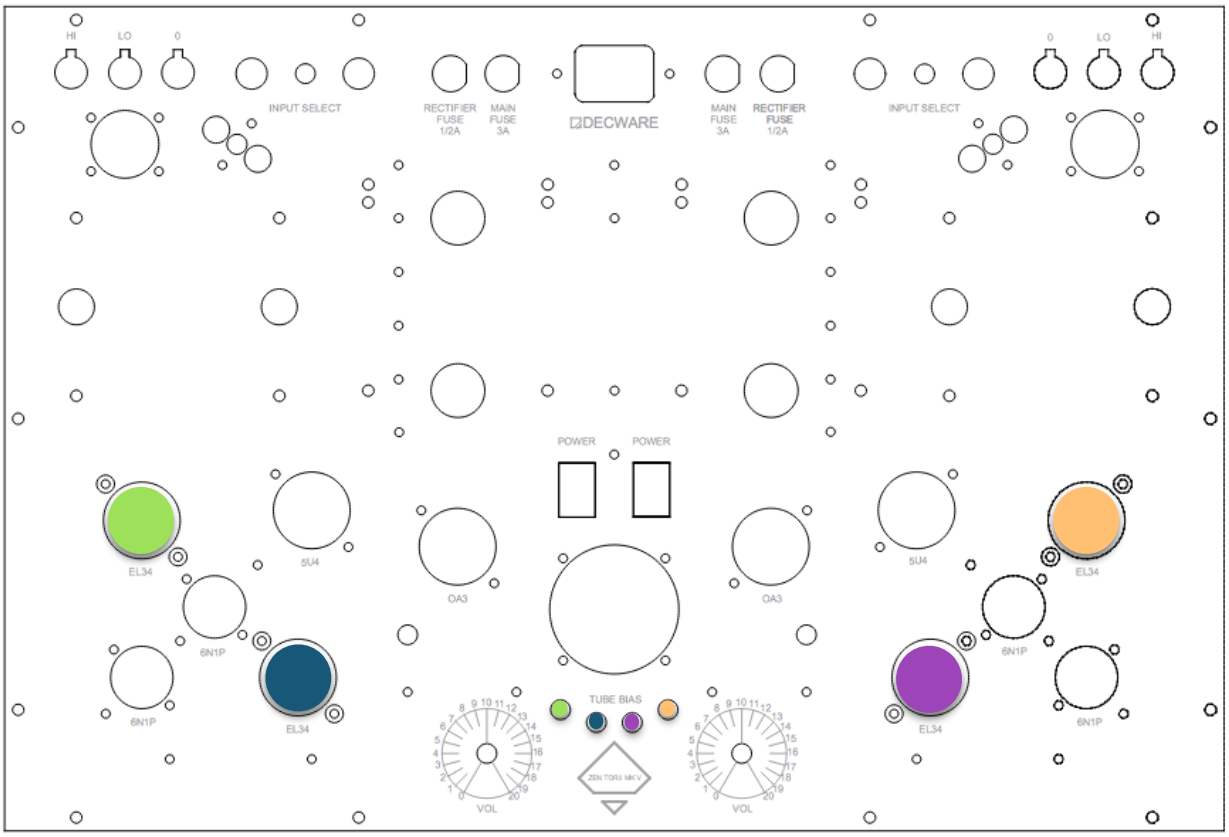
OUTPUT TUBES

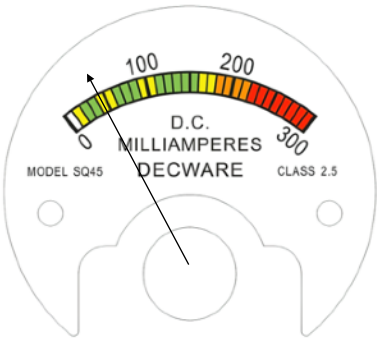
The Torii MK IV is by default shipped with EL34 output tubes. It can however use the following alternates: KT66, 6550, KT88, 6L6, 5881, 7027, KT77.

MATCHING

It is important to run a matched PAIR of output tubes in each side of the TORII MK 5. If each pair of output tubes do not draw the same amount of current that channel will develop hum. You can check to see if your tubes match at any time once they are warm by simply using the meter.

TUBE METER





There are four switches below the meter that are laid out similar to the output tubes they represent. You may use one switch at a time to see the current draw of it's corresponding tube - or you may use two switches at a time - typically used to see the total current for a channel. And you can use all four switches at the same time to view the total current for all of the output tubes. This is a common use for the meter while the amplifier is playing.

No harm will come to the amplifier from running in the red, but the extra current draw may reduce power output slightly.

TUBE FAILURES

OUTPUT TUBES

If an output tube fails or becomes weak from excessive use, the channel with the weak tube will distort early, even if the pairing output tube is perfect. It only takes one tube to go bad in a push pull pair to ruin the sound. Often you will be able to detect the bad tube with the meter.

INPUT TUBES / PHASE INVERTERS

If an input tube fails or becomes weak the same symptoms or early distortion or noise will occur. The best way to determine if one of the input tubes or phase inverters is acting up is to replace them with new tubes that have been tested ahead of time and known to work and test within spec.

VOLTAGE REGULATOR TUBES

These rarely fail but they can be overloaded from a shorted input tube or phase inverter, so if one of those tubes went bad it may reduce the life of the OA3. Generally, if an OA3 is glowing, it works.

RECTIFIER TUBES

The 5U4, 5AR4 rectifiers in these amps should last the rated hours of the tube. The power supply capacitance is 8uf. This tube is externally fused on the rear of the amplifier. Use between 1/4 and 1/2 amp fuses.

Since this is a fully cathode biased amplifier with relatively low voltage for tube gear, it should be understood that nothing inside the amplifier makes tubes fail. If tubes are failing it is the tubes themselves in 99% of all cases, not the amplifier that was responsible for the tube failure.

PIN STRAIGHTENER

The 9 pin tubes in this amplifier must always have straight pins otherwise you will damage the tube sockets. If you plan to roll tubes we recommend getting one of our tube pin straighteners. It's cheap insurance.

START UP

Before starting your amp for the first time, be sure all the tubes are installed in the correct locations. Hook up your speakers to the amplifier. Do not hook anything to the inputs of the amplifier at this time. With the volume controls all the way down, power up one side of the amp first and then power up the other side. Listen for noise and hum from each speaker. Whatever sound you hear should be about the same on both channels. New tubes can make noise intermittently on start up while the impurities burn off the plates. This is normal and should go away within the first hour.

Now that the amplifier is on, and the gain control is all the way down, hook up your source or preamp to the inputs. Start your recording and slowly raise the gain control until you reach the desired volume.

PREAMPS

If you plan to use an active preamp with your TORII MK5, you may find the best sound is with the gain control on the TORII somewhere below "all the way up" when used with pre-amplifiers that have gain. Don't be afraid to experiment.

As a general rule you can add weight to a recording by turning the preamp up higher and the gain (volume control) on the amp lower. The reverse is also true if a recording is too thick, just turn the gain on the amp higher and the volume on the preamp lower. Of course this is system dependent as to how noticeable it is, but many find it useful.

BREAK-IN

During the first few hours or days with your amplifier you will no doubt wonder about break-in, if for no other reason than hearing about it constantly every time you read about new amplifiers.

If you're new to tube gear the amp will sound *so good right out of the box* that you will have a hard time worrying about break-in, so don't.

BREAK-IN (cont.)

If you've been around the block a few times, the fastest way to break in the amp is 5 hours on with music and 5 hours off. Repeat this process 5 times. This process will speed the seating of the dielectric in the coupling caps and you can then expect the amp to bloom in the very near future.

Beyond this, the amplifier will continue to improve and become more and more refined over the several hundred hours. After that, the output transformers and wire will continue to season with age. That means that an amplifier that is 5 years old often sounds better than an amplifier that is 1 year old. Yes, it just keeps getting sweeter as time goes by.

WEAK LINKS

Please, if even only for an evening, lift some of the handicaps you've placed on your new amplifier so you can hear more of it's inner magic. The fidelity of your amplifier is limited by the weakest sounding link in your system. The quality of your source component and interconnect cables is of paramount importance because you now have an amplifier so good it will never become the weak link. You can't spend enough money on a source to hear how good the amplifier actually is, so each time you upgrade your source the amp will blow your mind all over again.

Make sure you pull your speakers well out into the room set up in a triangle with the listening chair. In this arrangement you will be able to hear the music go holographic with outrageous depth and width. Amuse yourself with how well your speakers disappear.

Statistically most owners of Decware amps have never heard the real potential and inner magic the amp is capable of. Because it sounds better than what they had, they stop exploring. Room acoustics are what create the boundary between potentials with this amplifier. Even with a 7 figure DAC as your source, you will not get to the magic place I'm talking about in an un-treated room unless by sheer luck.

It is possible to take a spare bedroom of smallish size and create a dedicated listening space that literally sounds like it's 8 times larger than it really is. Imagine perfectly rendered 3D space throughout as if your walls didn't exist. If more people realized this is possible with diffusion and absorption I think you would see a lot more treated listening spaces and a lot less equipment swapping.

MAINTENANCE

Cleaning should be done with the amplifier OFF and at room temperature. Tubes should be removed prior to cleaning. A damp towel with alcohol is ideal for removing any smudge marks.

Input jacks can also be cleaned with an alcohol soaked Q-Tip inserted into the jack and rotated. If the Q-Tip comes out with dark stains on it, your jacks were dirty. Jacks can get dirty after only a single insertion of a non-cleaned interconnect cable. Having clean connections is important. Finger oils do not help the sound. Products like Caig DeOxit, ProGold and other contact cleaners/enhancers can also be used as a part of a regular maintenance program. The volume control should not need cleaning as the chassis for this amp is sealed to keep dust and smoke out of the inside of the amplifier.

The amp is cathode-biased so there is no maintenance or adjustments to make after you install new tubes. Just enjoy the sound. If the tubes are not a good match for the amplifier, the bias meter will be reading in the red.

POWER CORDS and CONDITIONING

Upgraded power cords can and do make a difference when the overall strength of the audio chain begins to show a sock power cord as the weak link. We hear nice improvements with the use of silver/Teflon DHC-1 power cords.

TWEAKS

The biggest thing regarding tweaking the amplifier itself is going to be tubes. Every tube will sound a bit different. Rolling tubes, in particular the input tube, with your favorite NOS (New Old Stock) can yield some very synergistic effects. Beyond tubes, a good power cord and clean power, the only thing left is vibration control. This amp will suffer from vibration less than most due to the heavy steel it's built from. Things like tube dampers and high mass stands can further improve focus.

SERVICE and REPAIR

Your amp is covered parts and labor for the lifetime of the original owner. Should it ever need repair or you just want it checked, contact us or fill out the RA form on our web site and include it with your amp when you ship. We'll contact you after it has arrived and let you know what we've found and determine exactly what caused it. So far less than 1% of Decware amps have required service since they started shipping in 1998.

GETTING THE MOST FROM YOUR ZEN TORII MK5

Your amplifier comes with a lifetime warranty. Probably one of the only amplifiers in production that has one. Decware is a small enough company to consider these hand built amplifiers to be like our pets. We like to keep tabs on them and make sure they're healthy and happy at all times. We don't want to see one get stuffed in a closet and go unused.

If you're not getting the sound you're after or grow tired of your amp we already know the 26 reasons that could have created this effect and would be pleased to offer some free consulting.

There are also over 100 articles written on the web site to this effect and active support forums for you to participate in.

SAFETY

You can't get the most from your amp if your not around to hear it! Never remove the amplifier from it's wood base. There are no user serviceable parts inside. With all tube amplifiers it is wise to turn them off when you go to bed or are away from home. Tube amps are high voltage devices and tubes are in themselves imperfect devices so failures are possible even when the amp is just on not playing any music. Keep children away, tubes are too hot to touch. Specifically the 5U4, EL34/KT66 and 6922 will burn you. The remaining tubes that glow bright orange (OA3 and OC2) do not create any heat and are safe to touch while on. Keep water away from amplifier at all times, especially when on. A single drop of water hitting a hot tube will make the tube break and short out in the process. Keep flammable items a safe distance from your amplifier and make sure the removable power cord you use is in top condition.

SPECIFICATIONS

INPUT TUBE CHOICES: 6922, 7DJ8, 6N1P, 6N5P

PHASE INVERTER TUBE CHOICES 6N1P

OUTPUT TUBE CHOICES: EL34 ,KT66, 6550, 6L6, 5881, 7027, KT88, KT77

INPUTS: 2 RCA TYPE INPUT JACKS FOR EACH CHANNEL
OUTPUTS: HEAVY Gold BINDING POSTS PER CHANNEL

OUTPUT STAGE TOPOLOGY: GND-CATHODE TRANSFORMER

ELECTROLYTICS: AXAIL F&T 500V

FILM: MIFLEX COPPER FOIL 630V

RK LOAD PLATE TO PLATE: 6600 OHMS
IDLE CURRENT: 47 MILS PER OUTPUT TUBE

HIGH B+ VOLTAGE: 370 VDC PER CHANNEL
INPUT IMPEDANCE: 100 K OHMS
INPUT SENSITIVITY: VARIES WITH TUBES USED. RANGES BETWEEN 1 and 2 VOLTS.

POWER OUTPUT 20 WATTS RMS PER CHANNEL
NOISE: -88dB. HUM: -73dB

OPERATION: CLASS A1
INPUT STAGE REGULATION: ONE VR75 PER CHANNEL
RECTIFICATION: ONE 5AR4 or 5U4 PER CHANNEL

SIZE: 19-1/8 'WIDE x 13-3/4 "DEEP x 7-3/4 "HIGH
NET WEIGHT: 39.8 lbs.
WARRANTY: LIFETIME TO ORIGINAL OWNER / 90 DAYS ON TUBES

COMMENTS FROM THE DESIGNER

The TORII MK5 is the latest in a long lineage of TORII amplifiers and is our best yet.

TORII is the Zen term describing a gate to enlightenment or enhanced consciousness. We name it this for reason we think you'll find obvious once you have owned one for awhile.

Where did the TORII come from? Well, when you hear one of our 2 watt Zen Triode amplifiers, you leave knowing the only thing that could possibly be better than that is MORE OF IT. Meaning, the same sound, more power. What makes the sound so good is among other things, transparency. Transparency is directly tied to the number of parts and materials used in the circuit. More parts less transparency. Problem is, amps with more power require more parts. This is what makes this now 22 year effort so unique... the TORII design is special, it allows you to have your cake and eat it too by giving you that same even order harmonic sound with enough power to have some real fun.

The MK 5 compared to prior models takes everything to a slightly higher level, a side effect of building thousands of amps by hand and always coming up with ways to improve them.

I hope you enjoy the fidelity of this amplifier as much as I do, and invite you to call me directly anytime you have questions about it, or just about how to eliminate the next weakest links in your audio chain.

-Steve Deckert