

THE Shed

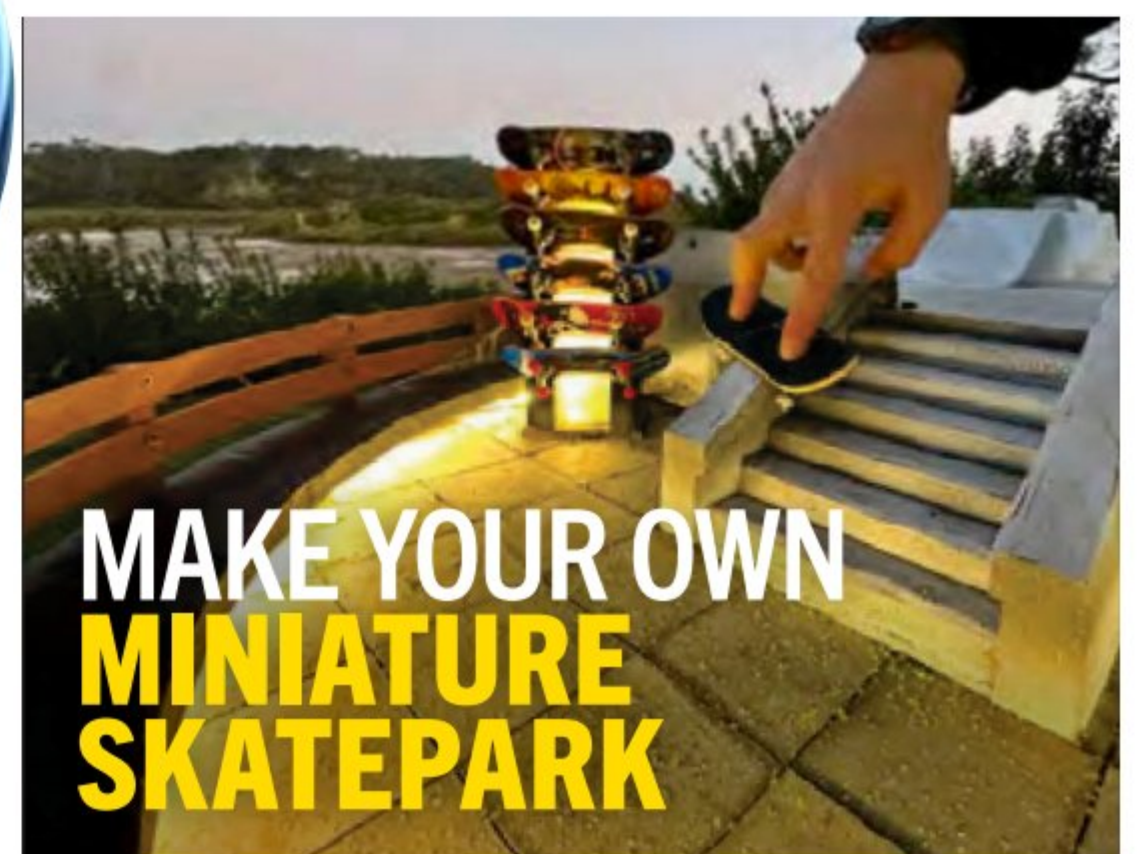
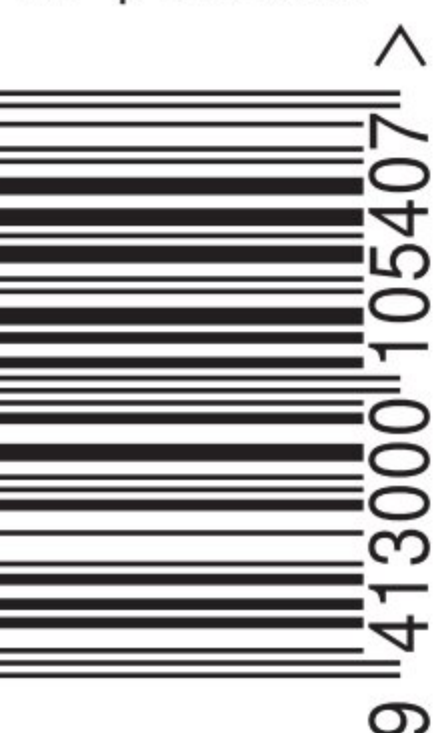
JUN./JUL. 2024
ISSUE 115
THE-SHED.NZ

THE JINGLE MASTER

**“POSSIBLY THE MOST
FAMOUS PERSON THAT YOU
HAVE NEVER HEARD OF”**



NZ \$17.95 INCL. GST



AUCKLAND

Harley-Davidson

Electra Glide

SPORTSTER

FAST PARTS

DOESN'T MATTER WHAT ERA YOU'RE RIDING

WE'VE GOT YOU COVERED

WWW.FASTPARTS.NZ

HOW TO SUBSCRIBE

ONLINE magstore.nz

EMAIL subscriptions@magstore.nz

PHONE 0800 727 574

POST Magstore, PO Box 46194

Herne Bay, Auckland 1147

CONTACT US

ADVERTISING ENQUIRIES

Matt Smith, 021 510 701

matt.smith@rustymedia.nz

OFFICE

09 200 4847

EDITORIAL TEAM

EDITOR

Greg Vincent, editor@the-shed.nz

SUBEDITOR

Karen Alexander

TECHNICAL EDITOR

Jude Woodside

PROOFREADER

Odelia Schaare

DESIGN

Mark Gibson

CONTRIBUTORS

Murray Grimwood, Jude Woodside,
Mark Seek, Enrico Miglino, Ritchie Wilson,
Nigel Young, Jason Burgess, Rob Bentley,
Chris Hegan, Quinton Taylor,
Mark Bellringer, Mark Gibson

RUSTY
MEDIA.NZ

PUBLISHER

Greg Vincent, greg.vincent@rustymedia.nz

FINANCIAL CONTROLLER

Karen Grimmond,

karen.grimmond@rustymedia.nz

ADVERTISING MANAGER

Matt Smith, 021 510 701

matt.smith@rustymedia.nz

PRINTING

Inkwise, 03 307 7930

DISTRIBUTION

Are Direct, 09 979 3018

NOTICE TO ADVERTISERS/DISCLAIMER

Rusty Media uses due care and diligence in the preparation of this magazine but is not responsible or liable for any mistakes, misprints, omissions, or typographical errors. Rusty Media prints advertisements provided to the publisher but gives no warranty and makes no representation to the truth, accuracy, or sufficiency of any description, photograph, or statement. Rusty Media accepts no liability for any loss which may be suffered by any person who relies either wholly or in part upon any description, photograph, or statement contained herein. Rusty Media reserves the right to refuse any advertisement for any reason. The views expressed in this magazine are not necessarily those of Rusty Media, the publisher, or the editor. All material published, gathered, or created for *The Shed* magazine is copyright of Rusty Media Limited. All rights reserved in all media. No part of this magazine may be reproduced in any form without the express written permission of the publisher.

No responsibility is accepted by Rusty Media for the accuracy of the instructions or information in *The Shed* magazine. The information or instructions are provided as a general guideline only. No warranty expressed or implied is given regarding the results or effects of applying the information or instructions and any person relying upon them does so entirely at their own risk. The articles are provided in good faith and based, where appropriate, on the best technical knowledge available at the time. Guards and safety protections are sometimes shown removed for clarity of illustration when a photograph is taken. Using tools or products improperly is dangerous, so always follow the manufacturer's safety instructions.



Variety is the spice of life, they say, and this edition's main feature story is not only one for readers to enjoy but also one to spice up their lives, I hope. Our cover story in this issue is on one Larry Killip. Who, I hear you ask? Well, when I say that he's a talented musician, recording engineer, record producer, jingle writer, and also the go-to guy for microphone repairs (he's known as 'The mic guy'), you will probably still say: who?

However, when I say, "Gotta get a garage, gotta get a gottage, gotta get a Skyline", you'll realise: oh, he's that guy.

The Shed magazine is all about clever Kiwis doing clever stuff in their sheds and, while this story is a tad different for us, let me remind you about that sweet-smelling spice I just referred to. The bonus with Larry's story is that we not only get a glimpse back to see the cool '70s music and bands that he was involved with and the energy of the scene at that time but also the vast array of vintage recording gear that he collects. Larry is also pretty much self-taught on all the strings to his musical-life bow – and, in my book, that is always to be applauded.

Learning to play an instrument takes real dedication and effort, in much the same way as all of our workshop sheddie

skills do. So we celebrate Mr Larry Killip, probably the most famous person you have never heard of – his life, talents, and skills – and hope you enjoy the journey.

One other article we are chuffed to be able to bring you in this issue is the story of young knife-maker Mack Jones. Fourteen-year-old Mack won awards at The Auckland Blade Show 2023, beating dozens of other knife-makers with decades more experience than him. That is no mean feat.

Mack's skill level is quite mind-blowing for one so young, and the support of his family goes a long way towards helping this young man achieve great things. This family have a cool rural set-up, where several generations share a shed and support each other doing their own thing. It's incredibly uplifting to see how close and supportive of each other's interests they are.

I find these two articles comforting in that they are perfect illustrations that our Kiwi sheds are in great hands today and for tomorrow. We still have talent to burn, from the young to the not so young. The future of Kiwi sheds is as bright as it ever was.

We'd better wear shades! 🕶

Greg Vincent

editor@the-shed.nz

STUDIO B



ON THE COVER

4 A ministry of sound
An under-the-radar icon of New Zealand music history tells how it all happened



20

Ashburton Wheels Week 2024

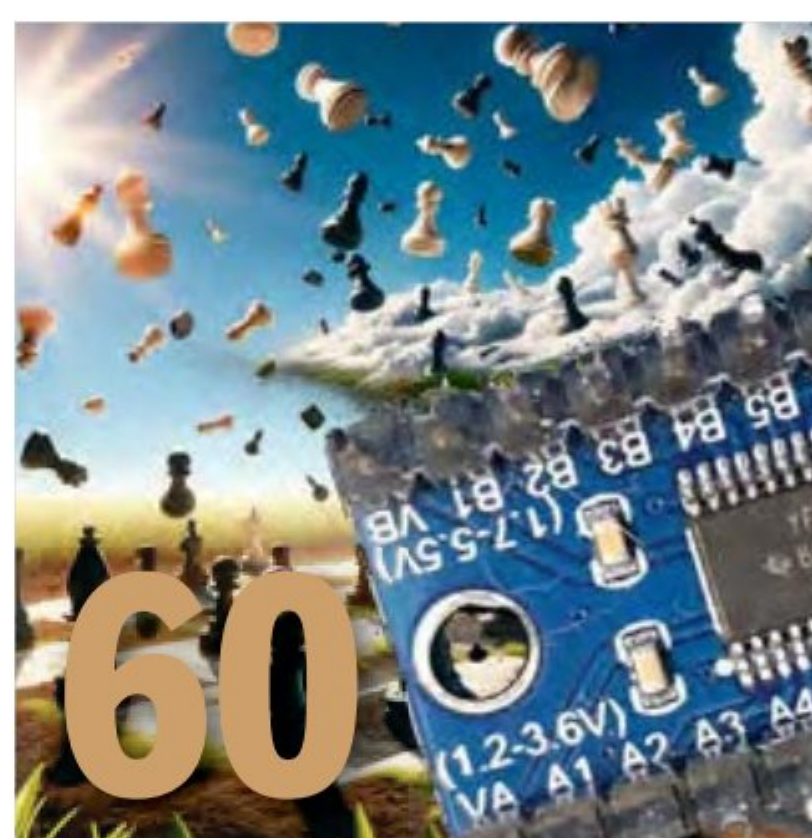
Autumn's here and the time is right for racing in the street



36

Mitre 10 turns 50

We track the history of our favourite DIY supplies store



60

Electronic chess project

The new Arduino Uno R4 – part 3



66

Industry insider

New CNC router offers features not previously seen on the New Zealand market



68

Off the grid

A little bit of this, a little bit of that ...



74

The Shed shrink: heart over hustle

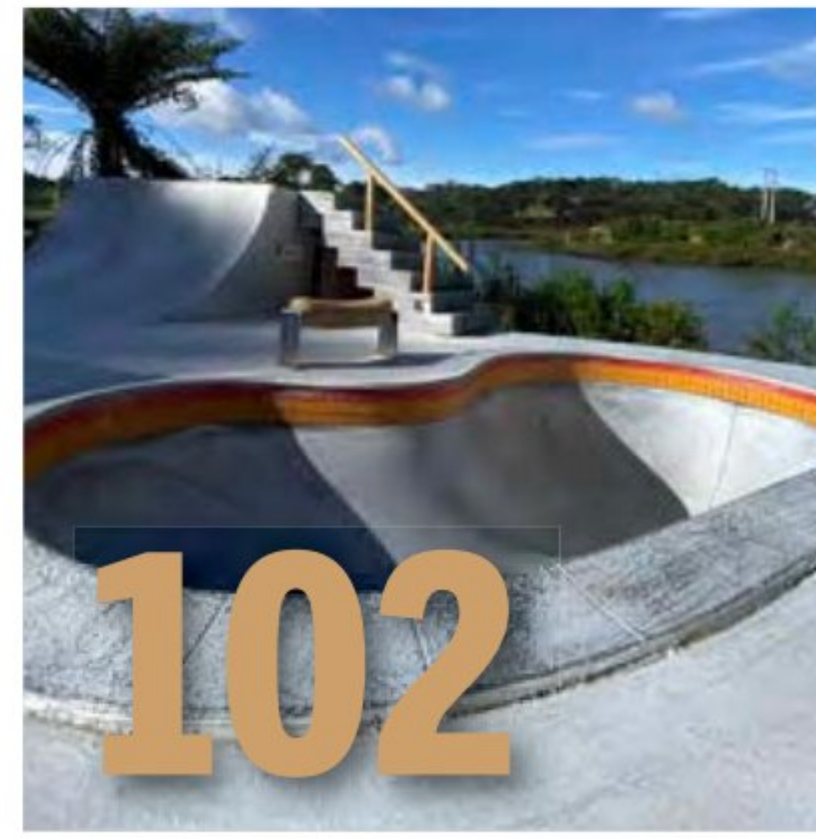
A dreamer keeps a timeless craft alive



88

Chris Gordon keeps busy – part 3

Turns an inventive mind to electrical transport



102

Sk8 till late

A dad builds his kids the ultimate miniature skatepark for under \$100



24 Building an acoustic guitar – part 2
The neck, heel, and bindings are added



46 The plane-makers
Building microlight aircraft



76 Restoring steering wheels
Wheels within wheels



112 A master smith in the making
The skills of young Mack, the knife-maker

EVERY ISSUE

- 1** Editorial
- 20** News
- 22** Letters to the editor
- 34** Subscribe to *The Shed*
- 123** Bookcase – essential sheddie reading
- 124** Back issues of *The Shed*
- 126** Find your local Menzshed
- 128** Back o' *The Shed* – Jude has a new rule: “Never give up on your chainsaw!”



20

With his trusty
Les Paul in the
studio

A MINISTRY OF SOUND

An under-the-radar icon of New Zealand music history tells how it all happened

By Jason Burgess

Photographs: Jason Burgess



A Minimoog synthesiser

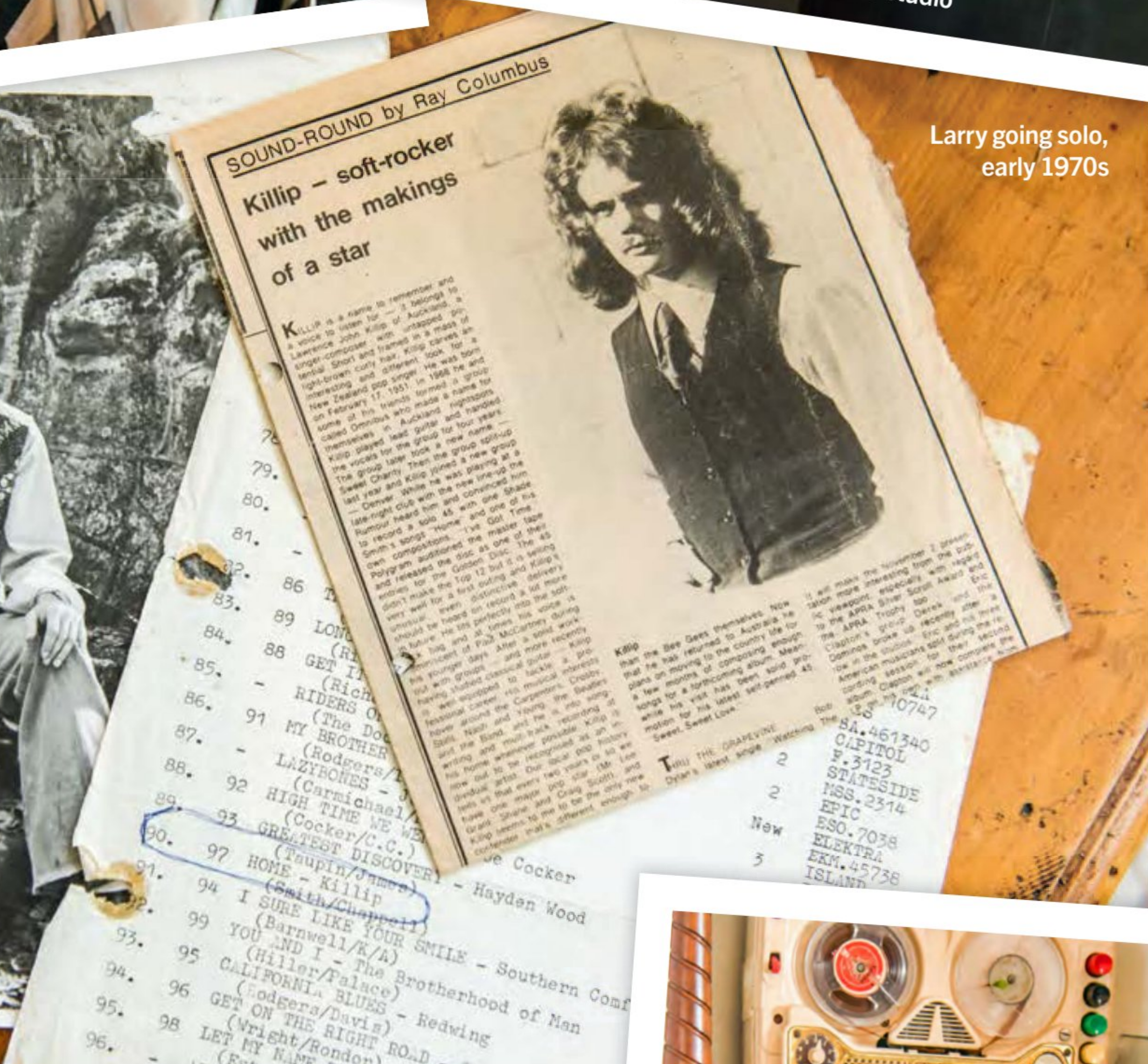


Vintage Ampex preamp, alive and still kicking in the studio



SOUND-ROUND by Ray Columbus
Killip – soft-rocker
with the makings
of a star

Larry going solo,
early 1970s



On first appearance, one might be forgiven for thinking that Larry Killip's place is a pop-culture museum set in an electronics lab. Cabinets and shelves brim with Kiwiana knick-knacks; the walls of musical memorabilia echo with various local musical legacies. On the floor, vintage instruments – including a 1968 Gold Top Les Paul guitar, which Larry bought new – stand among boxes of records: LPs and family history. On the workstations, amps, mics, and other deconstructed recording tech in various states of repair are stacked, awaiting parts or some TLC from the man himself.

Home is a studio

Larry's home is wired for sound. While the lounge resembles a

voltaic workshop and his basement an engineering shop, the adjacent downstairs potting shed has been converted into a small but perfectly formed master studio, complete with a pocket-sized voice booth.

If a recording project requires extra space or a different sound, then the master studio is connected to the upstairs front room and can be controlled from there via an iPad. The second bedroom is a stand-alone 'Studio B' for digitising and archiving old reel-to-reel audio tapes and VHS and Beta videos. Between those various spaces, Larry writes, records, edits, and masters music and sound productions – as well as restoring analogue sound gear – for a diverse gaggle of clients from the advertising, TV, radio, and music worlds. ▶



A case of vintage recording apparatus

Starbow in the groove – from left: Dave Read, Kerry Grimshaw, Denis ‘Tub’ Winters, Larry Killip, and Paddy Gibbons

The Zarks

Larry’s connection with the music business dates back to 1966, when he first jammed rhythm and blues with schoolmates in a band called ‘The Zarks’.

Since then, he has played in various iterations of that band; performed solo at the Nambassa Festival to a crowd of 30,000 right before the headline act, Little River Band; been featured on the compilation album *20 Studio One Hits: Vol. 2*; released seven albums and plenty of singles of his own; made appearances on *Happen Inn*, *Telethon*, *Shazam*, *Drop of Kulcha*, and *Radio With Pictures* TV shows; mastered the first two albums by Indie rock darlings The Bets; and performed a medley of his best-known advertising jingles on the TV show *7 Days*. With more than 500 jingle writing credits to his name, Larry laughs when he says that he is “possibly the most famous person that you have never heard of”.



Still going strong

At 73 years young, he is still actively writing and recording original material and producing his own music videos.

Beyond sound production, he is something of a go-to bloke for fixing vintage ribbon microphones. In his spare time, he revels in op-shopping for old electronics, audio tapes, and eye-catching Kiwiana. He also restores analogue cameras as a hobby, and is building a portfolio of black-and-white

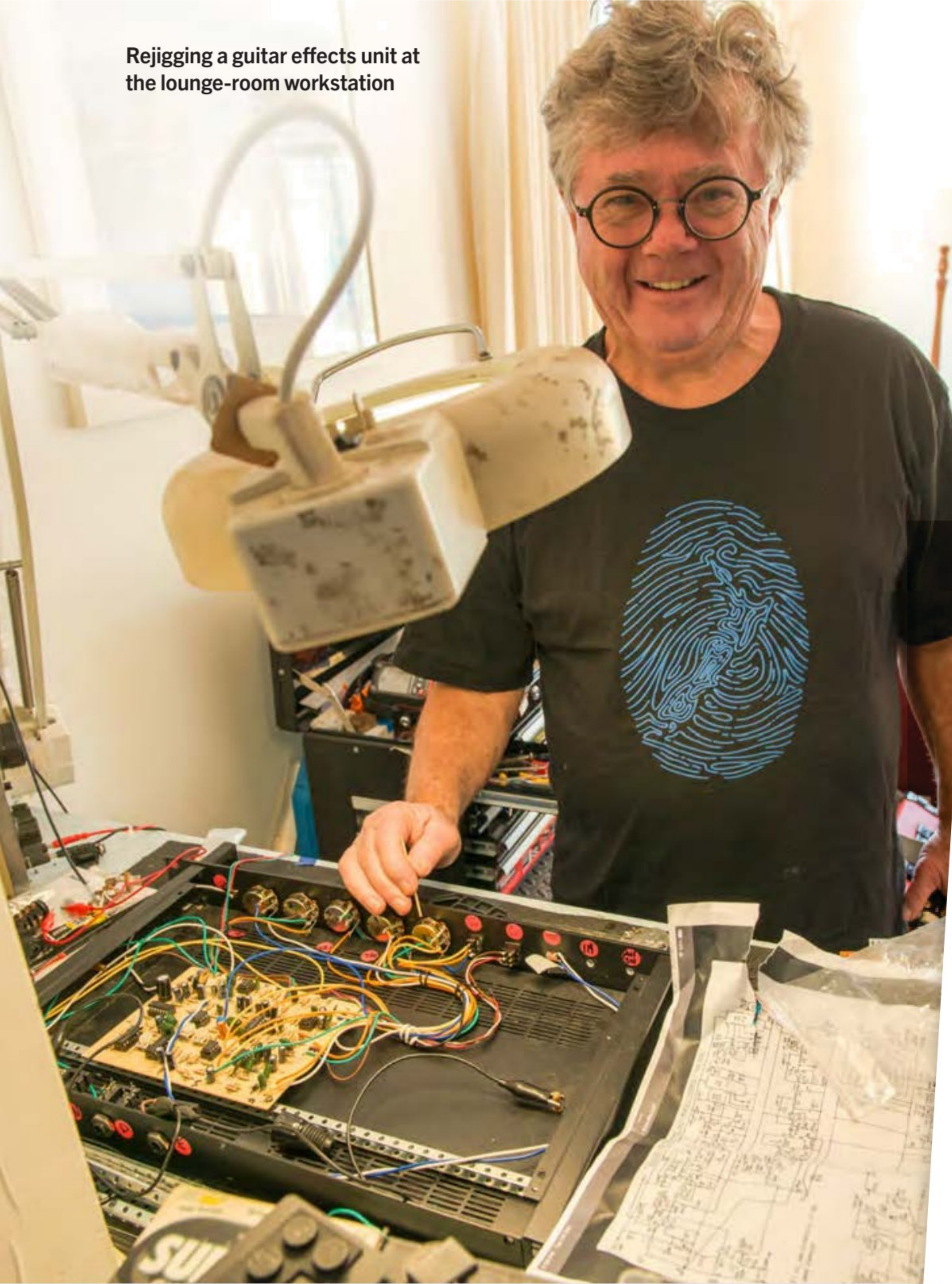
“Possibly the most famous person that you have never heard of”



Outside
Terry Bradley
place.
From left...
Terry Bradley
Greg Sharples
Larry Killip
Denis Winter

The Zarks jamming on a Mount Albert lawn

Rejigging a guitar effects unit at the lounge-room workstation



Larry with his pride and joy 1962 Mk2 Jag



“His dad was good with electronics and secretly wanted to be in radio, but, by day, he worked as a plumber”

portraits of some of New Zealand’s musical old guard, shot on various Rolleiflex film cameras from his twin-reflex collection.

On a Sunday afternoon, though, Larry will most likely be found out in the garage, with the radio on, tinkering with his 1962 Mk2 Jaguar, which he has fully restored himself. This, he calls “therapy”.

Family mentors

Larry reckons that all the Killips were handy. He credits his father and his uncle Harold as two of his earliest influences. His dad was good with electronics and secretly wanted to be in radio, but, by day, he worked as a plumber.

“He would regularly be fixing radios for family and friends on the lounge floor,” says Larry. “Dad was old school. His idea of seeing if there was any voltage going to a valve was to get a big screwdriver and zap it. *Wharp!* Well, that’s OK! The first thing I learned from

him was colour-coding on components – very handy to know what you are dealing with.”

Uncle Harold was a camera repairman who then became a tech specialist in the back room at Auckland’s Stebbing Recording Studios. When Larry was 15, Harold loaned him a Ferrograph reel-to-reel tape recorder. Larry sat in his bedroom and made his first album with it.

“Funny thing is, there was a little ribbon mic with the tape recorder, and I remember thinking how fantastic it sounded. Ribbon mics have a lot of bass end. Plenty of whoomph! They never sound thin and weedy,” he recalls.

The first bit of sound kit that Larry built for himself was a mixer, and Harold was the first person to give it the once-over. Harold also helped Larry to procure “a wonderful Revox tape recorder”, which he has kept since 1971 and has recently refurbished. ►



The Revox that Larry has owned since the early 1970s



A shelf of mics



Radio With Pictures

With the Revox, Larry soon figured out a way of multitracking at home: “Originally, I adapted the Revox. They normally come at seven-and-a-half inches per second, which is a bit slow for professional recording. I got a new spindle for it and changed the speed to a broadcast speed. Then I got an old Akai tape recorder; I had a spare head from the Revox and put it on the Akai – two, two-track tape decks – and got both machines electronically matched. I went to the nth degree with an oscilloscope, checking out the top-end frequencies to see if they were lined up, because I didn’t want any losses. It worked very well.”

Larry would invite friends over to jam:

bass, drummer, and him. He would mic them all up and together they would play live.

“When they all went home, I’d take the tape and copy it all to the other machine and then add some more guitar,” he says. “I’d record the Hammond organ at the keyboard player’s house. You could only do it a few times before the sound got muffled. One of the songs I did was called I Wanna be Free. I wrote that with Starbow. I submitted it to *Radio With Pictures* and, to my surprise, it got on. It was a completely homemade recording and, at that time, I thought, *I hope they don’t find out I recorded it at home* – I thought they might not play it – that’s why I was so very proud of that.”

Lucky break

While Larry began gigging and recording in his mid teens with bands like The Zarks, Omnibus, and Starbow, he earned the bulk of his wages working as a letterpress printer.

“I had a passion for printing; I was fascinated by typesetting. When offset came along, it took that away for me.”

Then, in 1980, Larry answered an ad in the newspaper for a sound guy.

“It was unheard of to see an ad like that in the paper. In those days, everything was work your way up through established channels, but the guy hiring was looking for new blood to manage a small facility – Genesis Sound.

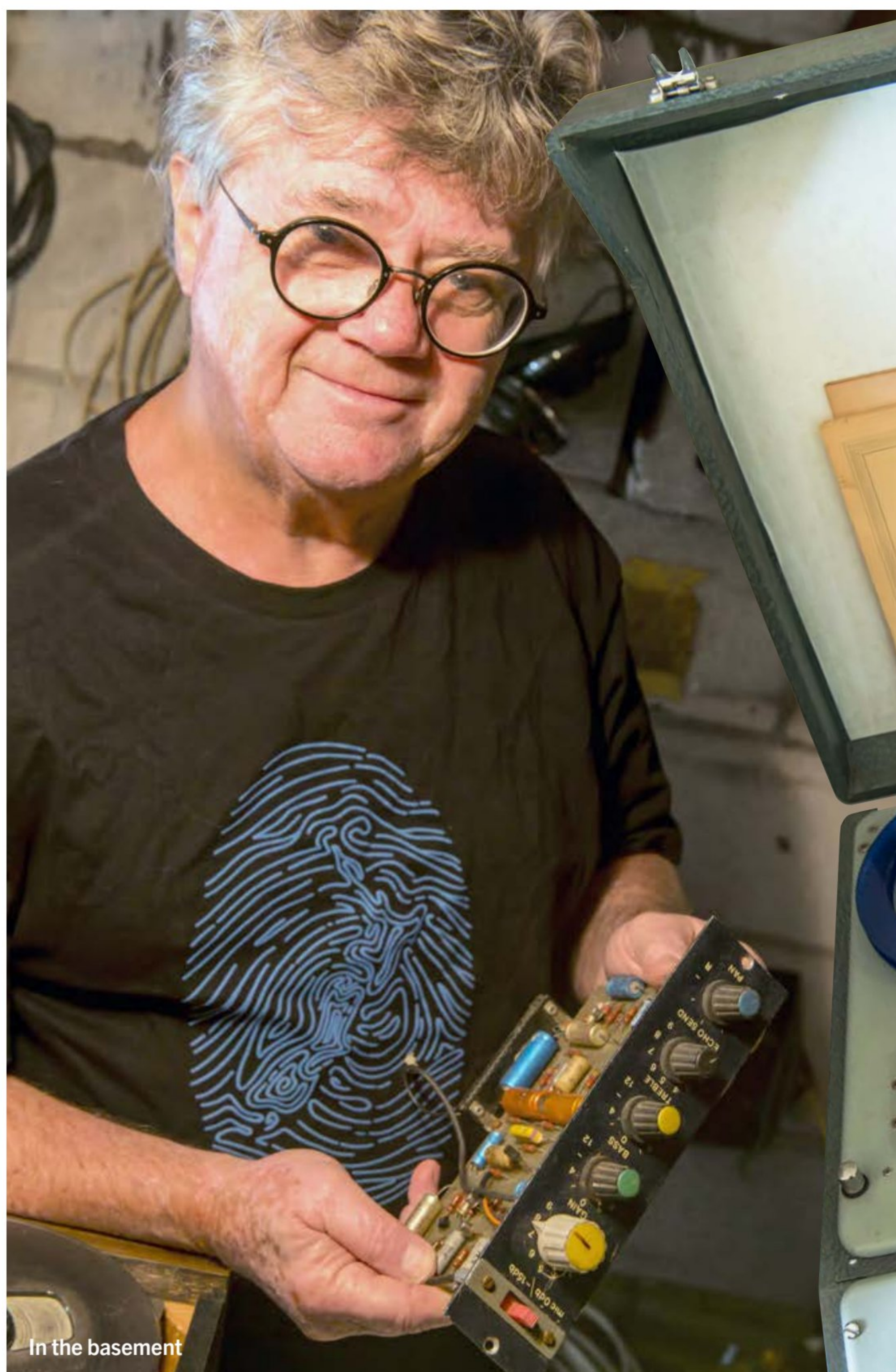
“I applied and took along the mixer I had made,” he says. “The team there was passionate – they are all still friends of mine – we didn’t just do an eight-hour day and go home; we had adventures.”

The recording studio was tied in with a TV studio, so Larry also found himself producing sound for pictures and was in the prime seat if music was needed for visuals. As his experience marrying sound and vision grew, so did the demand for his jingles.

He says, “I never intended that, but, if I could say that I was making a living making music, that suited me fine.

Other sound guys go to audio schools but I was lucky.” ►

“In 1980, Larry answered an ad in the newspaper for a sound guy. ‘It was unheard of to see an ad like that in the paper. In those days’”



In the basement

Larry recorded his first album as a 15-year-old on a Ferrograph like this



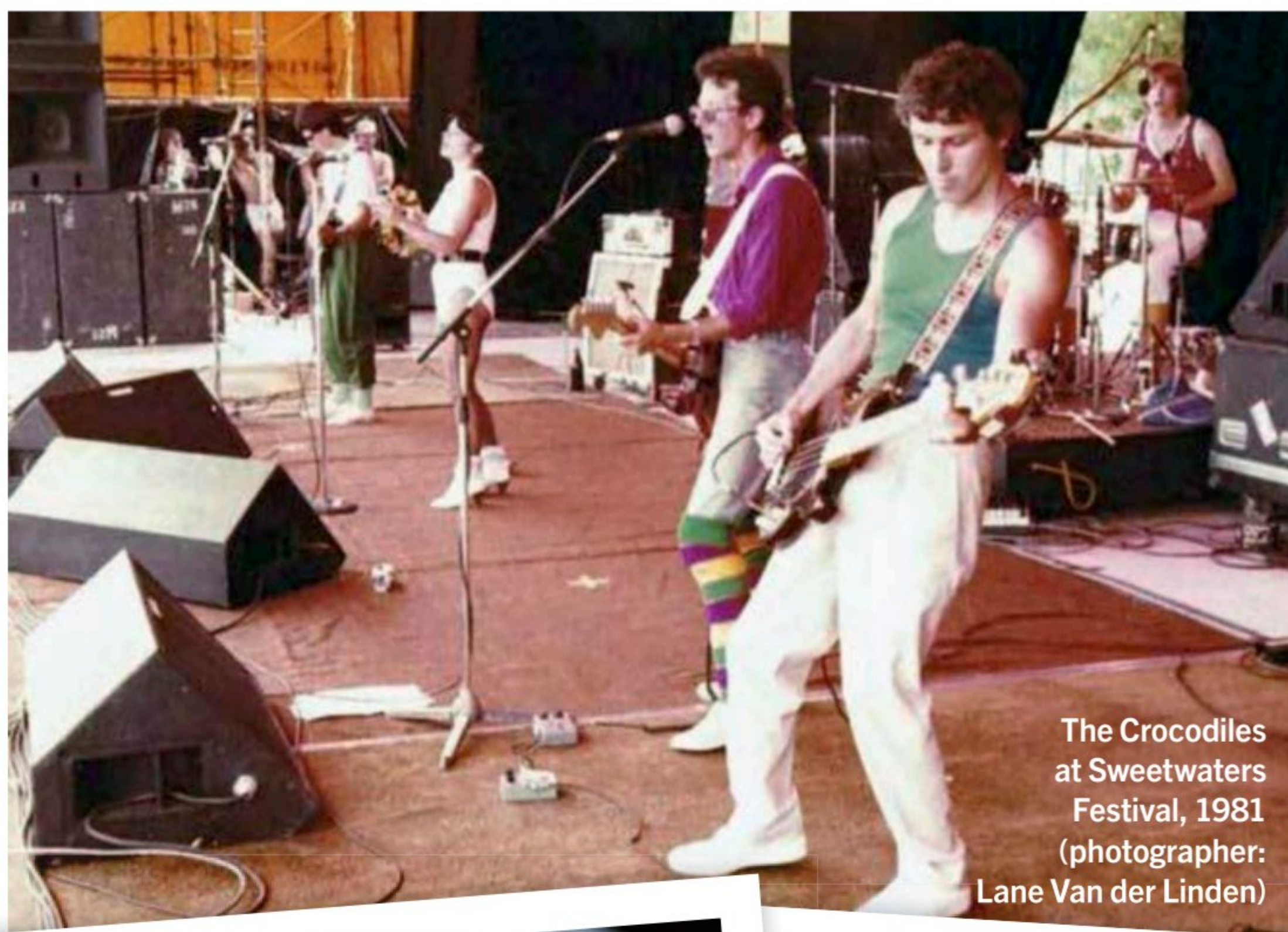
First big job

One of the first big musical jobs that came through the studio door was recording all the bands performing at the 1981 Sweetwaters Festival for *Radio With Pictures*.

“We were working from a tin trailer with no ventilation, at the back of the stage,” Larry says. “It was hot as hell. It was all eight-track and we were getting a feed from the main desk. That meant a mountain of tape, and I got to mix them all back at the studio.”

Larry is uncertain as to the whereabouts of most of those tapes but he does still have one: Split Enz’s show. He has subsequently copied and passed that on to the band.

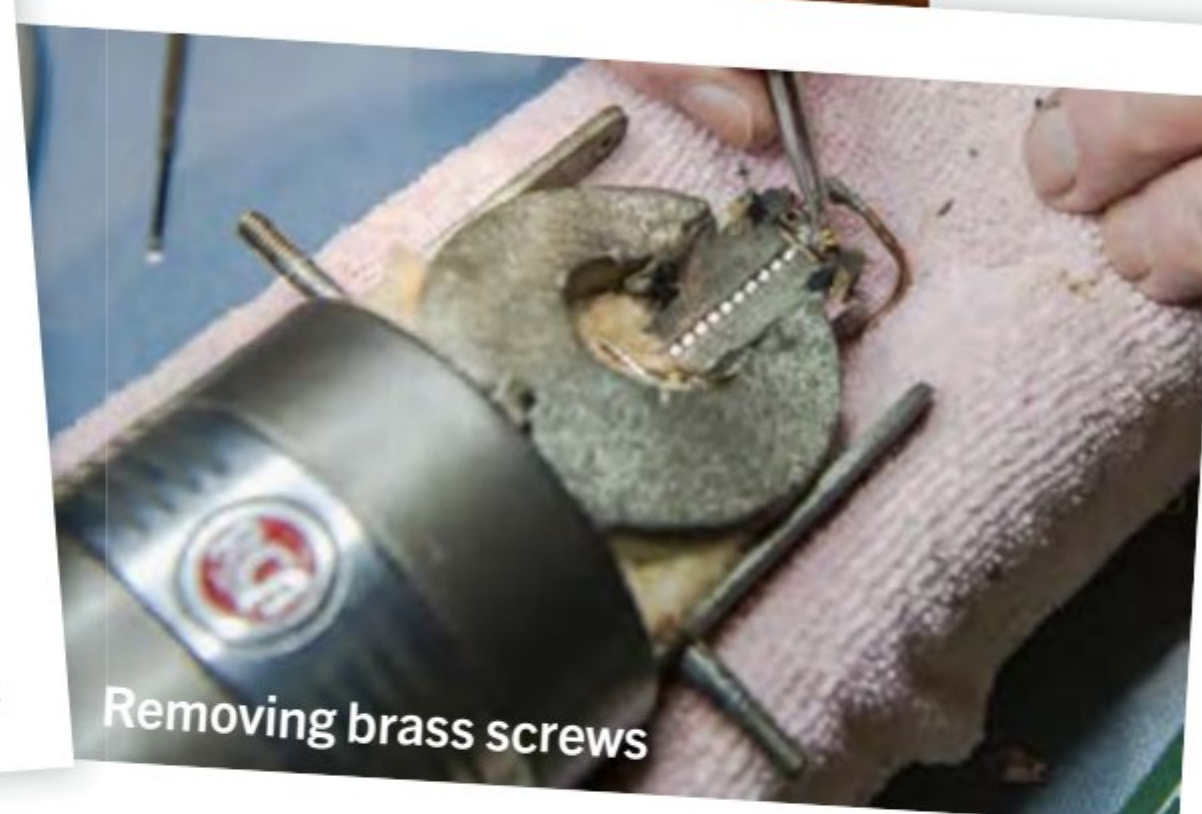
“I thought it sounded great, but they were worried about technical things like leads pulled through a song – that sort of thing. You wouldn’t notice it, but they did,” he says. ►



The Crocodiles
at Sweetwaters
Festival, 1981
(photographer:
Lane Van der Linden)



A ribbon of cut foil freshly corrugated



Removing brass screws



In the booth, holding a Neumann TLN 103,
Larry’s favoured mic for narrators

Build your own Darkroom

www.crkennedy.co.nz/photo





A Lauten Audio is Larry's mic of choice for "big, smooth-sounding" vocals

recording a full band playing live in a room like this and making it sound like they are not in a room like this. It can get loud, and sometimes you can't think. I did a jazz album in here: *Back and Forth*, by John Key [not that John Key]. We had drums, trumpet, an upright bass, even a piano."

These days, Larry has an electronic drum kit with real drum samples as an option for drummers, and uses a 1970s vintage compressor that he loves for drums. Bass is most often recorded direct to desk. He has modelling tools for guitar, although he still prefers to hear them, amped up.

His bread-and-butter studio jobs often involve mixing motorsport television programmes, working with a narrator reading to a guide video. Larry records that, then adds the supplied music, mixes in sound effects, and mixes for broadcast, before it gets the tick from the video maker.

He says, "It is a relatively simple process, whereas a jingle can be a pain: a lot of people having their say, particularly with an agency involved. Sometimes you have to record three or four different versions until everybody is happy. What is particularly annoying is: they may not have been sure about your idea in the first place, yet 25 years later, it's still rocking on the radio." ►

"Yet 25 years later, it's still rocking on the radio"

In the studio

Larry admits that he has never worked in large studios, but he has recorded some big-sounding albums at studios such as Echo Park and the Lab Recording Studio, and in his basement facility.

He explains, "There is a trick to



A case of collectables



Right: A sample of Larry's twin-reflex film camera collection



An R47 Studio Velocity mic in for refurbishing



Larry with a copy of 20 Studio One Hits Vol. 2 that he is featured on

Larry's top-10 'household hits'

Giltrap City Toyota (1985); still playing, now as Auckland City Toyota

Gotta Get a Garage, for Skyline

Kings Plant Barn

The Cheesecake Shop

C'mon, Callers, Join the Party

Sea Life Kelly Tarlton's Aquarium

Funky Up Your Bumper

Columbine

Briscoes – he did the drum and bass track, under Tammy's voice-over

Lighting Plus



In the basement



Larry at the controls



A tableau of props from The Beths' *Expert in a Dying Field* shoot at Larry's place

The Beths

With decades of experience in the music business, Larry has worked with a who's who of Kiwi talent, from a young Bic Runga and veteran blues star Hammond Gamble to Billy T James.

One of his recent personal highlights has been the mastering of The Beths' albums. "They are an amazing band," he says. "I loved them from the beginning. I knew Jonathan [guitarist Jonathan Pearce] before the band. He was just a young dude who used to come and see me about his mics. He had his own studio set up – tape recorders and microphones. He still does."

One day, Jonathan announced to Larry, "We've got this band."

After watching their first clip, he was hooked. "I said, 'That is right up my street.' It was just retro enough; I could just sense it was great. I didn't ask to work on it; they put their faith in me. I mastered their first two albums.

"By the time they came to their third album, they were well into an American tour and needed something on the spot. I was expecting that as they moved up."

When the band won the Australasian Performing Right Association (APRA) Silver Scroll, Larry and director



At the door of Studio B



A Crowley and Tripp Roswellite mic



The Crowley and Tripp LK1 prototype mic

Right: Crowley and Tripp Naked Eye with wooden case and mount

Frances Carter collected it on their behalf. Frances directed The Beths' clip *Expert in a Dying Field* on location at Larry's place.

"They used to come and visit but then they all just popped in one day and I think they must have been doing a reccy," he says.

At the end of the clip, the band can be seen playing live in Larry's garage.

"It was a stormy day; I warned my neighbours that it could get loud. One of them rang me up later saying, 'What a great band!'"

Making connections

Never one to rest on his laurels, Larry says he is always looking to learn new ways to do something.

"The internet is good for that."

One day, while trawling an online microphone forum, he got talking to an American inventor, Bob Crowley.

"I'd just written a song called *Stalking the Wild Pendulum*, which was taken from the title of a book by Itzhak Bentov. Turns out Bob had read the book and was curious about the

song. So, I sent it to him," Larry tells us.

Soon after, Bob and Larry started talking about ribbon mics in earnest: "He was about to start up a microphone-manufacturing business. I said I had a BBC monograph obtained from the Auckland Library, with all the details – corrugations, everything – and sent it to him."

Information like that was gold at the time. The two carried on comparing notes, particularly around ribbon-mic fragility. Soon, Bob came up with a new kind of ribbon called 'Roswellite' (an acoustic nanofilm).

Larry watched as Bob's company, Crowley and Tripp microphones, took off.

"One day, I decided to buy one of his mics, so I could say I got one off of my friend Bob. Then Bob sold the business to Shure microphones."

Soon after that, a package arrived at Larry's door; it was a Crowley and Tripp prototype: Model LK1, dedicated to Larry.

Sadly, the two never met in person before Bob passed away. ►



"I warned my neighbours that it could get loud. One of them rang me up later saying, 'What a great band!'"

Around the house

A friend recently told Larry that he should call his place, “Cobwebs”.

He admits, “This is not the sort of house a woman would take to. I live here alone.

“The great thing is I can just get up and get into it. If I had to tidy up, I would forget where I put everything.”

Managing all facets of sound production from creation to finished product while also turning his hand to repairs and restoration has meant that Larry can indulge his passions and make a living from all aspects of the recording business: “That has been very handy, because it is no use sitting here waiting for the next band to come through the door.”

He reckons he is as busy now as he has ever been.

“This is not the sort of house a woman would take to. I live here alone”



Corrugating foil in one of Larry's homemade machines



Ribbons of sound

To some in the entertainment business, Larry is known as ‘The Mic Guy’, a specialist of sorts in ribbon microphone repairs.

He calls it a black art, and believes he is possibly the only tech in the country restoring them at a semi-professional level. Given how painstaking a process these repairs can be, perhaps that should be of no surprise.

Ribbon mics go by many names: ‘velocity microphone’, ‘ribbon dynamic microphone’, and ‘pressure gradient microphone’. No matter what one calls them, they share one common denominator: a ribbon element of hair-thin aluminium, about 5mm wide, suspended between two magnetic poles.

The ribbon converts sound waves into electrical signals. As the ribbon vibrates within its magnetic field, it generates a tiny voltage that reflects the changes in air velocity.

The ribbon element is bidirectional, responding to sound arriving at the front or rear of the mic, in a figure-eight pattern. This makes them ideal for recording

two sources, one at the back and one at the front, while cancelling out extraneous sounds from the side.

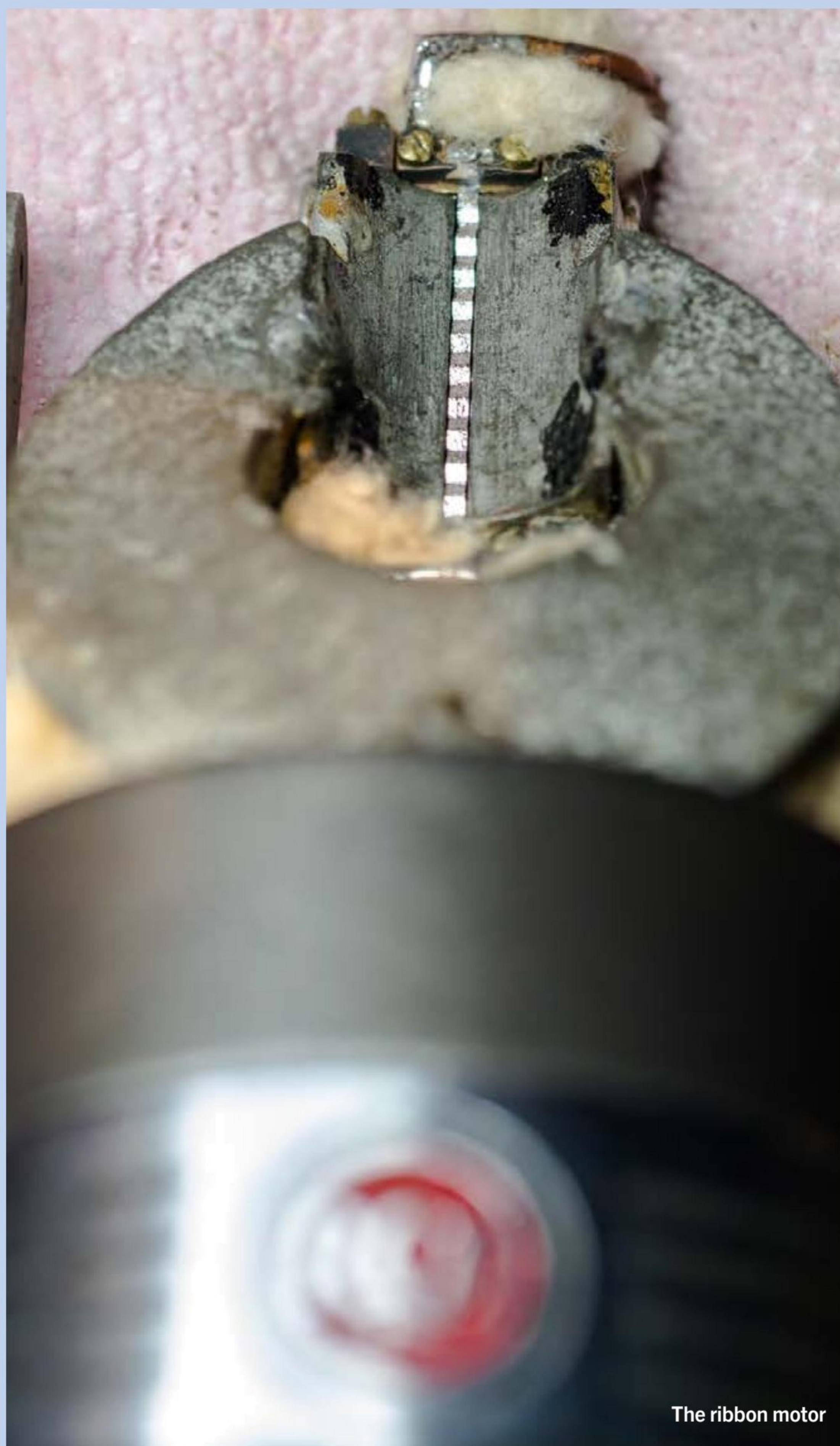
Larry loves “their real warm, analogue sound. They make great room mics for drums or orchestral recordings. The RCA 77-D and 44-BX are the granddaddy mics and are at the top end for ribbon mics. They can fetch between four and five grand.”

Ribbon mics were invented in the early 1920s by Walter H Schottky and Erwin Gerlach at Telefunken, but it was Harry F Olson at RCA who put them on the map in the early 1930s.

The first commercial ribbon mic to hit

the market was RCA’s PB-31, but that was quickly followed by the company’s classic 44-A and 77-A.

When Larry first started fixing the mics, he had to figure out how they were made and how their fragile elements were corrugated. Finding the perfect ribbon material was a mission. He discovered that many consumer mics were repaired with cigarette packet foil. While that was OK for the kind of mics that came as a package with tape decks for home use in the 1960s, the foil was too thick (about four microns [μm] or more) for pro recording and, according to Larry, “Sounds tinny!”



The ribbon motor

Freshly corrugated foil



Sourcing the right foil

He began experimenting with sign writer’s aluminium foil. However, at $0.6\mu\text{m}$, it was too thin for most jobs.

“It sounds great and is suitable for some mics, but most customers would split that the first time they used it,” Larry says.

Then he hit on the ideal product, with scientific foil of $2.5\mu\text{m}$ thick.

“It is 95 per cent aluminium, which I buy from overseas suppliers,” he says. “It took a long time to figure out where to get that and it is highly sought after.”

When it came to corrugating the foil, Larry had to make his own hand-wound corrugating machines, sometimes using Meccano gears and bent nails for handles. Getting the corrugations correct took some trial and error. He has mastered the technique by sandwiching the foil between rice paper that is then folded in craft paper. This ensures that the foil does not break in the corrugation machine and gives the ribbon a pattern that strengthens it. To fine-tune adjustments to ribbon tension and to access all parts of these vintage mics, Larry has had to modify and sharpen jewellers screwdrivers to avoid destroying the tops of their tiny brass screws.



The 'flutter test'

The flutter test

Once the ribbon is in position, Larry checks the ribbon resonance. He uses a light breath – something he calls “the flutter test”. It tells me that the complete length of the ribbon is not touching the side, and that the bounce factor is about right. We want the ribbon to have a resonant frequency of about 60Hz down at the bottom end.

“If the ribbon is too tight, that will come up to a higher frequency; it might start to sound telephone-boxy. When it is right, the richness of the bass end is fantastic.”

After the flutter test, Larry plugs the mic in and records with it: guitars and speech. He then compares that against samples from good mics.

“I need to know all the parameters,” he explains, “so I test with the proximity effect: speaking and recording through the mic, announcing the date, and the distance from the mic. A small change in distance from the mic will change the bass response. While I may like the sound today, tomorrow my ears might have changed. If you have a reference, you know where to adjust.”

While ribbon mics are not quite a love job, neither are they a big earner.

“If one of the steps is not quite right,” says Larry, “and you are trying to compromise, the odds are it will not come out right; then, it could take a whole day to do one.” 📦

BSA is BACK



Returning to New Zealand in 2024,
BSA is BACK with the all-new Gold Star.
Register your interest today.

Learn more at bsamotorcycles.co.nz





A lucky find: 1930 AJS motorcycle in fine condition

ASHBURTON WHEELS WEEK 2024

Autumn's here and the time is right, for racing in the street

By Ritchie Wilson Photographs: Ritchie Wilson

Over three weeks, various events involving things running on wheels are occurring in the South Island town of Ashburton. They involve, among others, sprint cars, motorcycles, scooters, go-karts, hot rods, and vintage cars.

For many years, the Ashburton branch of the Vintage Car Club of New Zealand (VCC) has been holding a swap meet at its Tinwald site on the first Saturday of May. I have heard claims that this is the longest running swap meet in the country; it is certainly a big event. I was there for almost three hours this year and I didn't get around the whole thing.

Not just car parts

Swap meets have evolved greatly over the decades, and at some (Ashburton's would be a good example) the number of vendor sites selling car-related stuff is probably lower than the number selling tools, antiques, signs, books, bottles, or what have you.

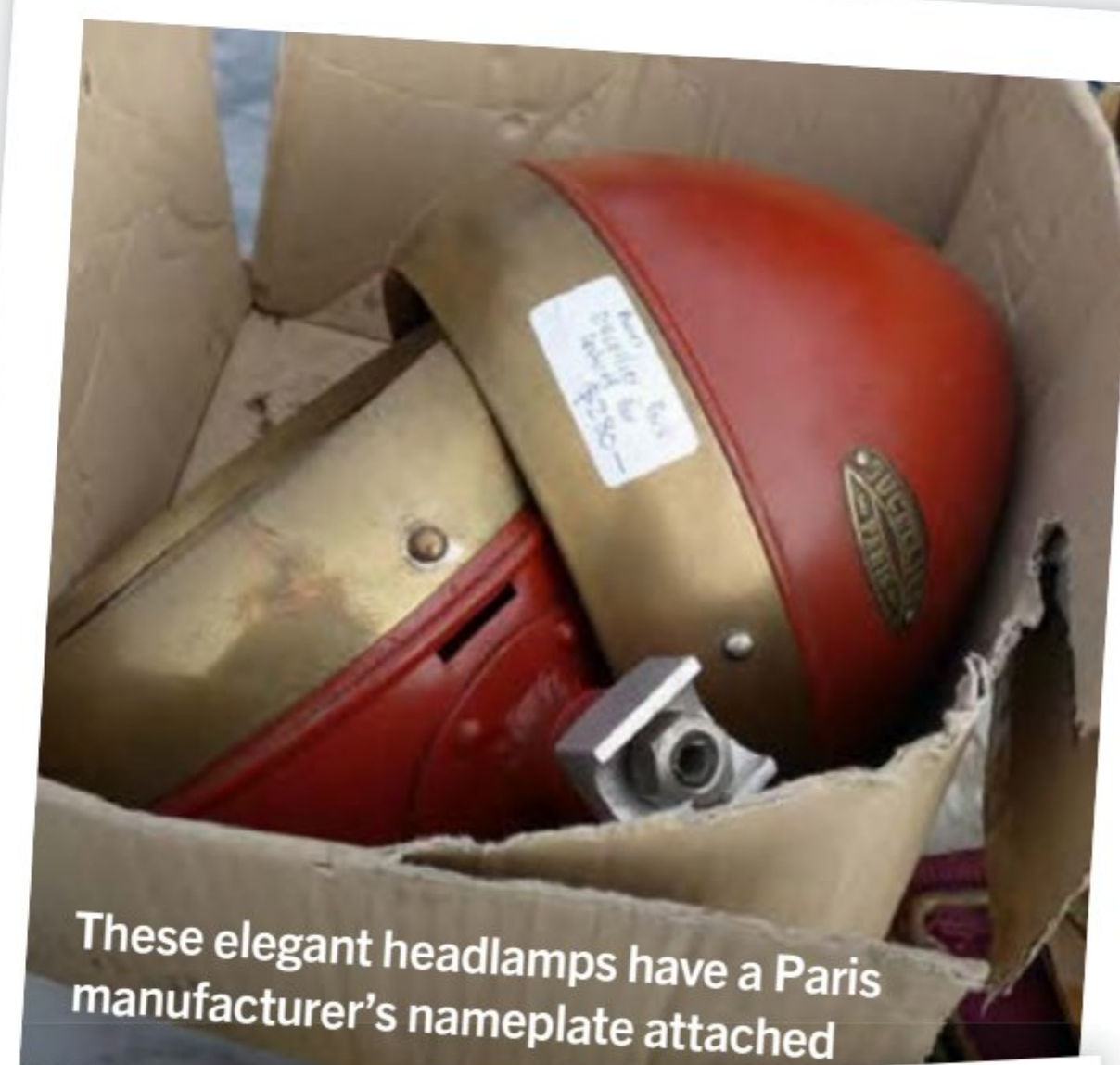
I bought a number of items at this meet, none of which was a car part. I bought a book – a United Motor Parts (Chevrolet) catalogue, which listed parts from the 1924 Superior to the 1948 Fleetmaster models – an English Stanley six-inch tape measure; some hardware items, some small tools; and a packet containing a gross (144) of Sidney Cooke Fasteners (NZ) Ltd's corrugated wood fasteners. The fasteners are those wiggly strips of steel that used to be used to hold the corners of picture frames together – perhaps they still are.

Most years I buy much more.

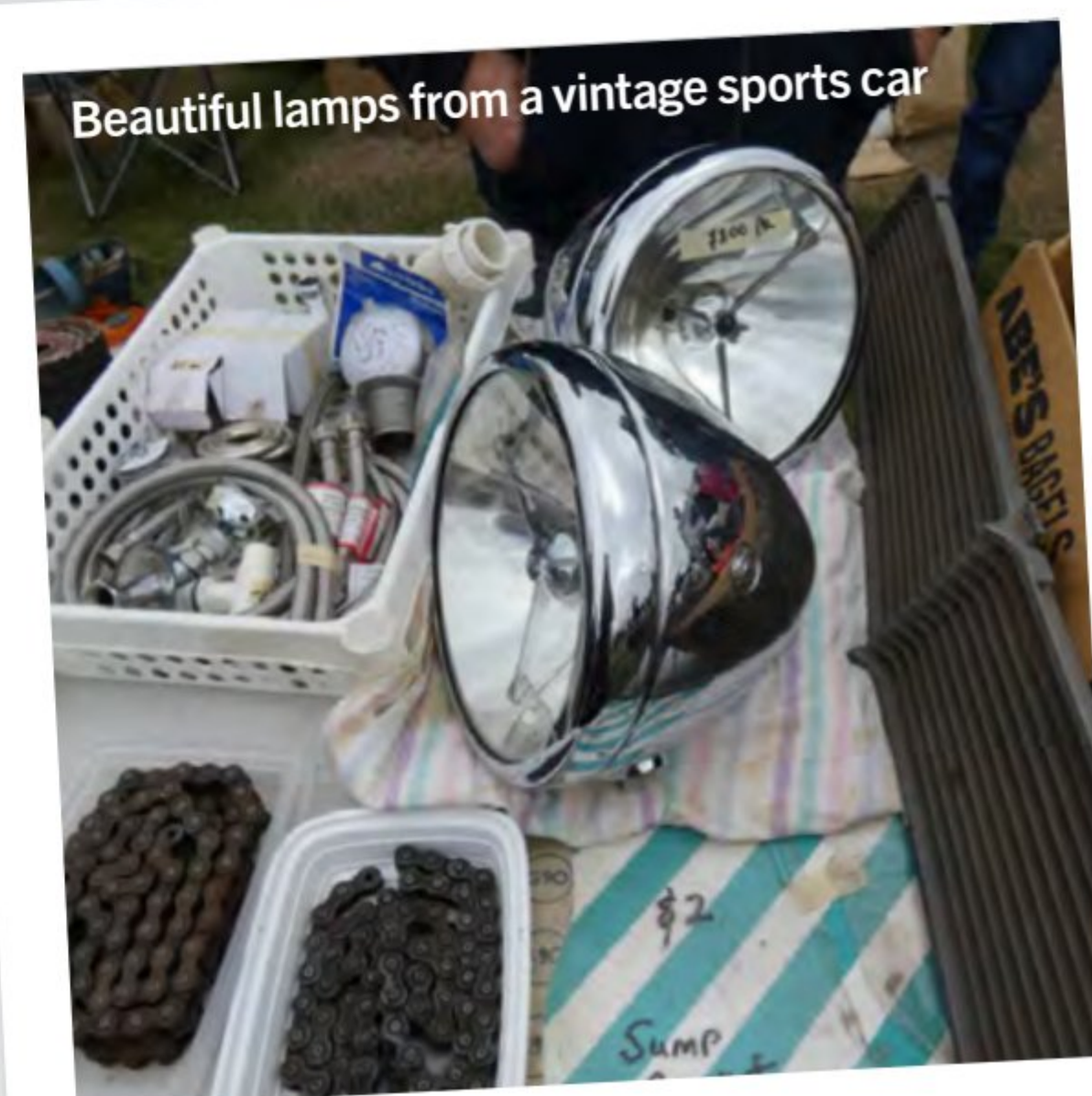
Nice lamps

I was looking for a pair of Lucas LB 130 or LB 133 headlamps.

There were several beautifully chromed pairs of very large headlamps from thoroughbred sporting vehicles – one a Rolls-Royce, another French. One person was selling very decorative



These elegant headlamps have a Paris manufacturer's nameplate attached



Beautiful lamps from a vintage sports car



A few of the vendors sold antique bottles



MGB-powered replica 1930s MG racer

and expensive brass oil lamps from Edwardian cars. None of the sites I visited was selling headlamps from smaller, utilitarian British cars, which are my interest.

We set out to make the trip south with the sun still low in the eastern sky, but had a couple of delays so didn't get to Ashburton until after 9am. From the Rakaia River bridge we could see the engineers working to repair the parallel rail bridge. It had one of its pylons swept away by recent flood-waters.

When we arrived in Ashburton, the town was shrouded in mist, the air distinctly chilly. The swap-meet car park was in the field behind the four long rows of stalls and contained hundreds of cars. The Timaru branch of the VCC had held its annual swap meet a month before, in very good weather, at the new venue of Orari Racecourse, and attracted what appeared to me to be a similar number of patrons. Several of the dealers who were at Tinwald had also been at Orari. One told me that he attends the swap meets at Tinwald, Orari (formerly Winchester), Hororata, and McLeans Island every year, selling mainly tools. He sold me that tape measure.

How's that lathe, mate?

Some of the site holders have been selling me stuff for years. One cries out "Sidchrome!" when I near his stall; another asks – as he has on several previous occasions – "Have you got that lathe running yet?" I bought three sockets from the first, a pair of Japanese pliers from the second. They are both good guys, selling good stuff; I would miss them if they weren't there.

An earlier event in Wheels Week was a street sprint, against the clock, around a course in the Riverside Industrial Park. It was held over two days; the first day was for all-comers, the second for the fastest 32 from day one. The two drivers with the fastest times race the course together, door-handle to door-handle, to determine the winner. This year's winner, with a record time, was Josh Mitchell of Christchurch, driving (of course) a WRX. Christchurch mayor Phil Mauger came 22nd.

Also scheduled: an unpowered scooter race, special movie shows, a family bike ride, a motorcycle tourist trophy (TT), a motorkhana, a night trial, and two action-packed afternoons of speedway.

Make a plan to attend this event next time – you won't be disappointed. 📌



Autumn mist shrouding the trees in the background, warmly dressed punters in the foreground

THE SHED ONLINE

What's happening online at the-shed.nz?

Every week, we upload new content onto The Shed website to add to the hundreds of articles and videos already on the site for readers to discover, learn from, and enjoy. Some uploads of the past few months include:



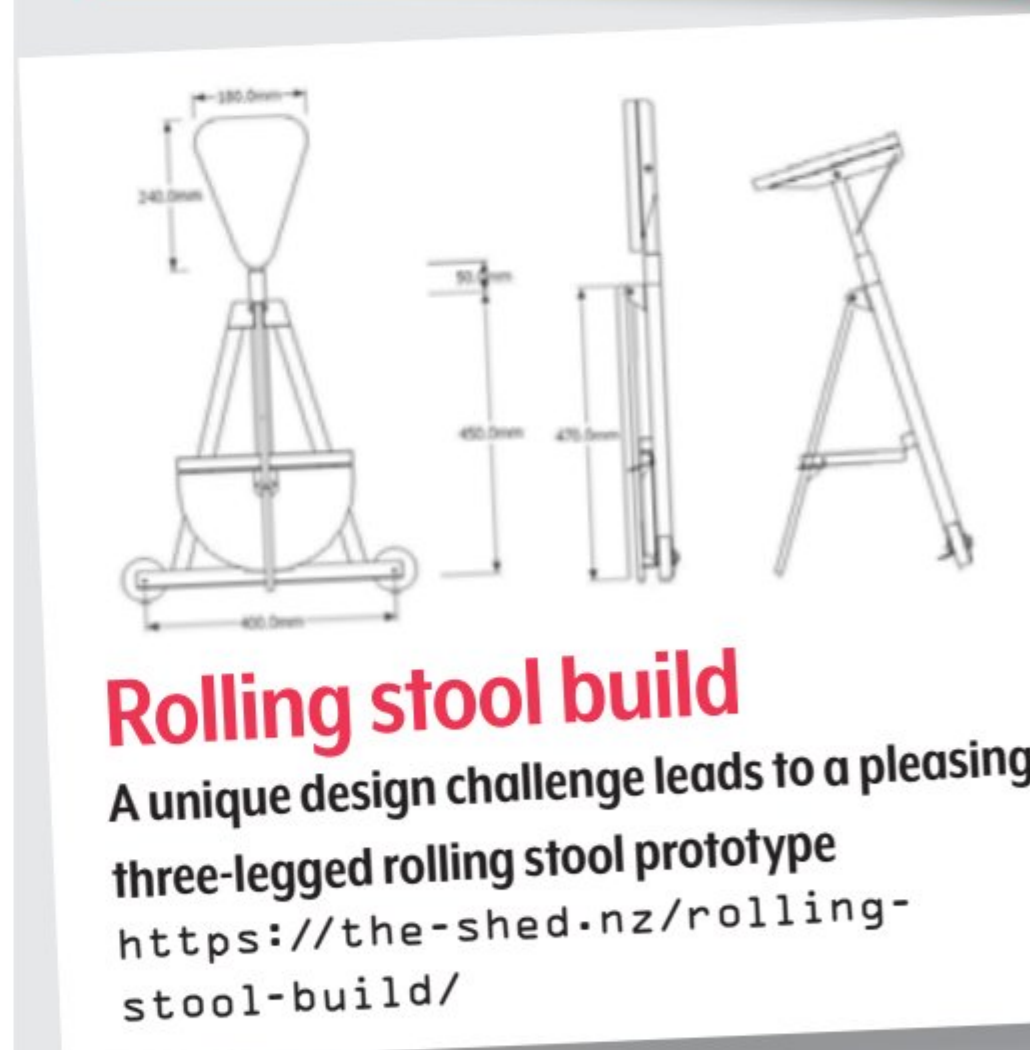
Mr Fix It

A former panel beater can turn his hand to most jobs at hand
<https://the-shed.nz/mr-fix-it/>



Engines on the move

Times change, and so does your shed space; time to go smaller
<https://the-shed.nz/engines-on-the-move/>



Rolling stool build

A unique design challenge leads to a pleasing three-legged rolling stool prototype
<https://the-shed.nz/rolling-stool-build/>



Metal spinning lives

There's local work aplenty for this ancient handcraft
<https://the-shed.nz/metal-spinning-lives/>

LETTER OF THE MONTH

A SHED REVELATION

Dear Ed.,

A couple of weeks ago, I was lent a copy of the Feb./March issue of *The Shed* to admire the article on pages 68–76, which my nephew, Scott Gavin, had written about the shed/studio he had built for his daughter Grace. What could be better than a creatively conceived and constructed personalised space to further fuel creativity, and a customised roof-top for the whole family to enjoy? Then, to top that off, have the story behind it published. Yes, the whole family is rightly proud.

What a delight, and surprise, to peruse further and enjoy the rest of the magazine as well. It's crammed full of ideas and information to make and utilise your own special space and projects. There's even more online – but then you know that already.

It's 'bleed'n' obvious' that I am a newcomer to this publication, and now I am reluctant to give the magazine back to the lender, for there is much fascinating information to be gleaned from its pages. What piqued my interest was to learn that someone else, also seduced by the curve-ability of concrete reinforcing mesh, had harnessed that to good effect with a ferro-cement build. I've often fancied dabbling with this, but, until now, didn't quite know where to start. There are endless possibilities here.

However, as a bit of a novice, I feel overseas contributions to the magazine

might benefit from some translation of the required materials into their Kiwi equivalents.

Whilst it could be some time before I feel the need to emulate Chris Gordon's power-tool dragsters, I am immediately envious of the pegboard tool-organising wall he is pictured standing alongside. Wouldn't one of those make my life easier!

Kicking back to further scrutinise the magazine and delve into the cover story about Chris Elliot's shed, there was a light-bulb moment. Comparably, he is certainly well above my skill set, but his shed is clearly a magical melting pot where memorabilia and diverse life experiences combine into stunning new projects.

My past is considerably less illustrious but perhaps no less eclectic. When reading through this article, a sudden shock revelation hit me like a brick: my life has been seriously deficient for 60-plus years.

What I urgently need is my very own separate space in which to cram all 'my stuff', and nurture my very own brand of sheddie-ness.

On the wall there will be the inscription: "The first law of shed dynamics is: The need for shed space will always grow to exceed the space available." – J Woodside, 22/02/2024.

Many thanks to you, and all your contributors, for the revelation and the inspired path ahead.

H Sanders

LETTER OF THE MONTH PRIZE

Every issue, our Letter of the Month winner will receive a copy of *Best of The Shed 1* and *2*. More top projects from 15 great years of *The Shed* magazine.

Letters to be emailed to:
editor@the-shed.nz



Odd Jobs

Hang out on your own DIY swing chair!



Elevate your outdoor entertainment area with your very own DIY swing chair. This is a satisfying weekend DIY project that you and your family and friends can enjoy for years to come.

Swing chair to do list

- ✓ Prep and prime with the right Resene primer for your materials
- ✓ Build out the base, framing and construct the chair
- ✓ Paint with Resene Lustacryl in your chosen colour
- ✓ Suspend your chair and hang out!



View how to make your own swing chair, plus cut lists and step-by-step instructions at masterstrokebyresene.com

Visit your local Resene ColorShop for all your decorating needs and the widest range of NZ made paints, wood stains and colours.

MasterStroke
by Resene

THE SMART WAY TO MOW



No matter the size or shape of your lawn



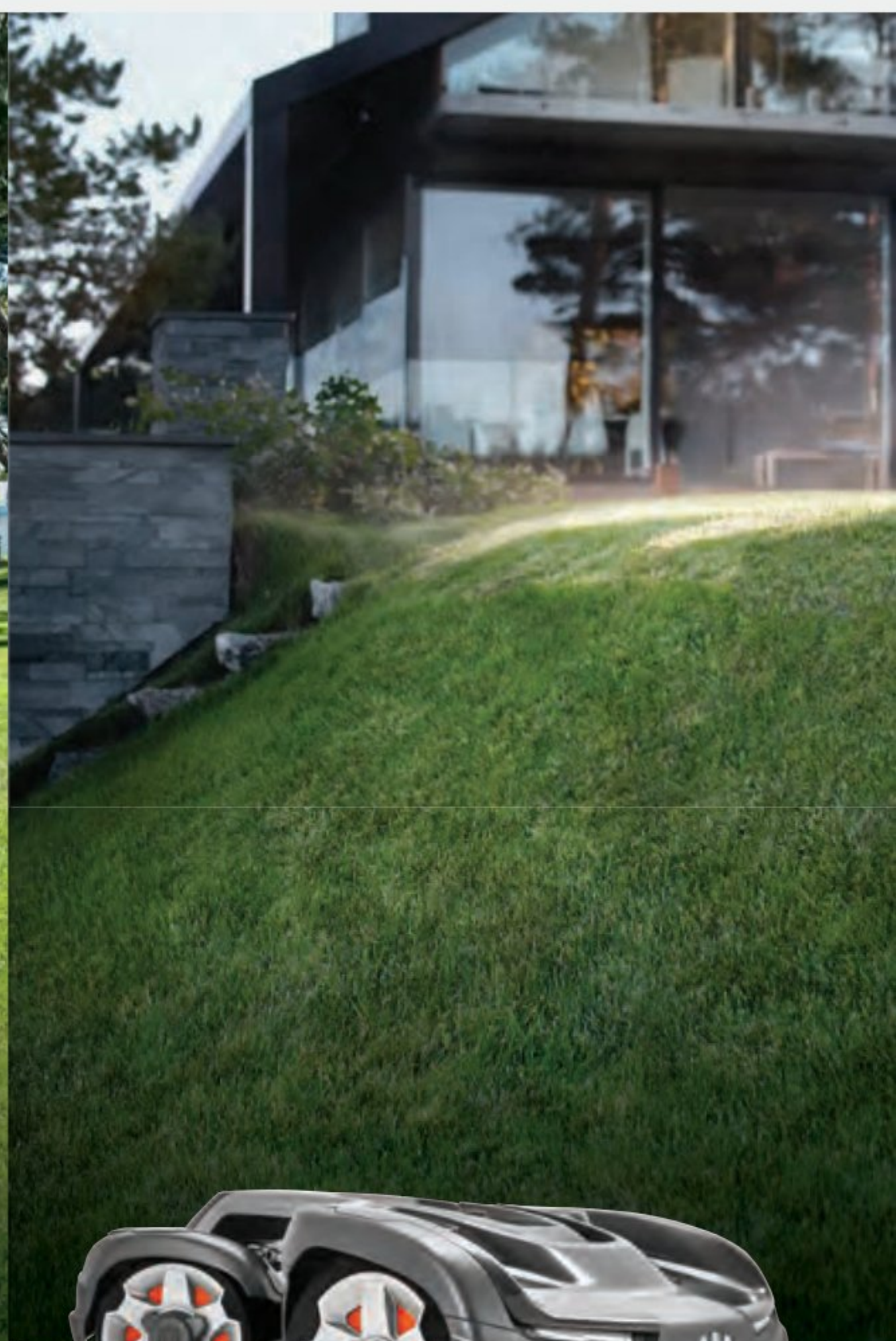
AUTOMOWER® 305

Compact robotic lawn mower for efficient mowing of more open grass areas. Suitable for smaller lawns up to 600 m². RRP \$2,190



AUTOMOWER® 415X

Reliable, high-performance X-Line robotic lawn mower with Automower® Connect. Ideal for mid-sized, more complex lawns up to 1500 m². RRP \$4,490



AUTOMOWER® 435X AWD

Our all-wheel-drive robotic lawn mower, designed to handle complex areas, tough terrain and slopes up to 70% (35°). RRP \$8,490

DISCOVER OUR WIDE RANGE OF ROBOTIC LAWN MOWERS

Steep slopes, big, small or complex? Every lawn is unique, that's why Husqvarna has developed a wide range of smart robotic lawn mowers to fit you and your lawns every need, whatever they may be. Developed with the outstanding reliability of Swedish engineering and the latest user-friendly technology, find your perfect match with the robotic buying guide at [HUSQVARNA.COM/AUTOMOWER](https://www.husqvarna.com/automower)



SEE HUSQVARNA AUTOMOWER® IN ACTION
[WWW.HUSQVARNA.COM](https://www.husqvarna.com)

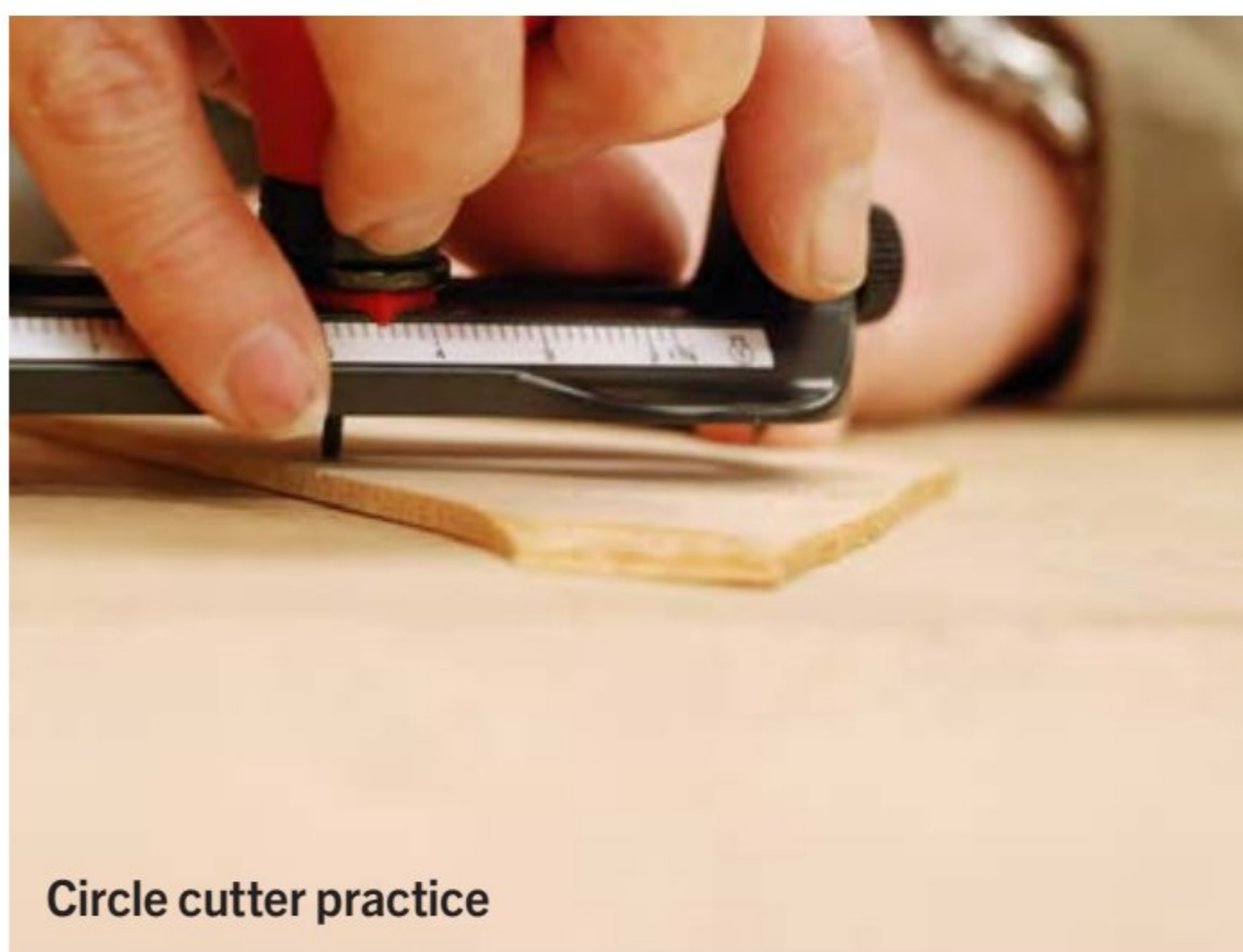
BUILDING AN ACOUSTIC GUITAR

PART 2

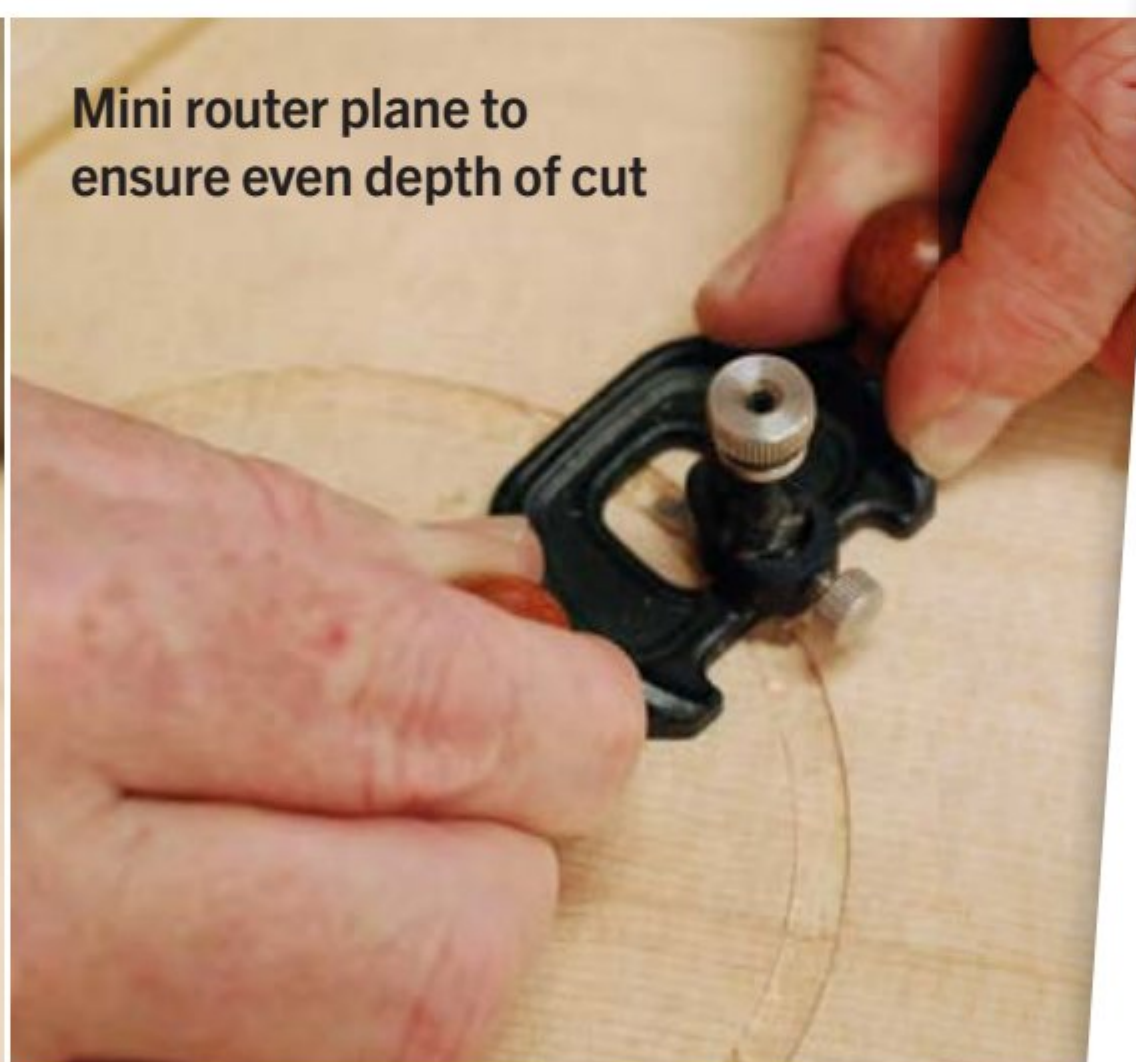
Neck, heel, and bindings are added

By Rob Bentley

Photographs: Rob Bentley and Giani Flego



Circle cutter practice



Mini router plane to ensure even depth of cut

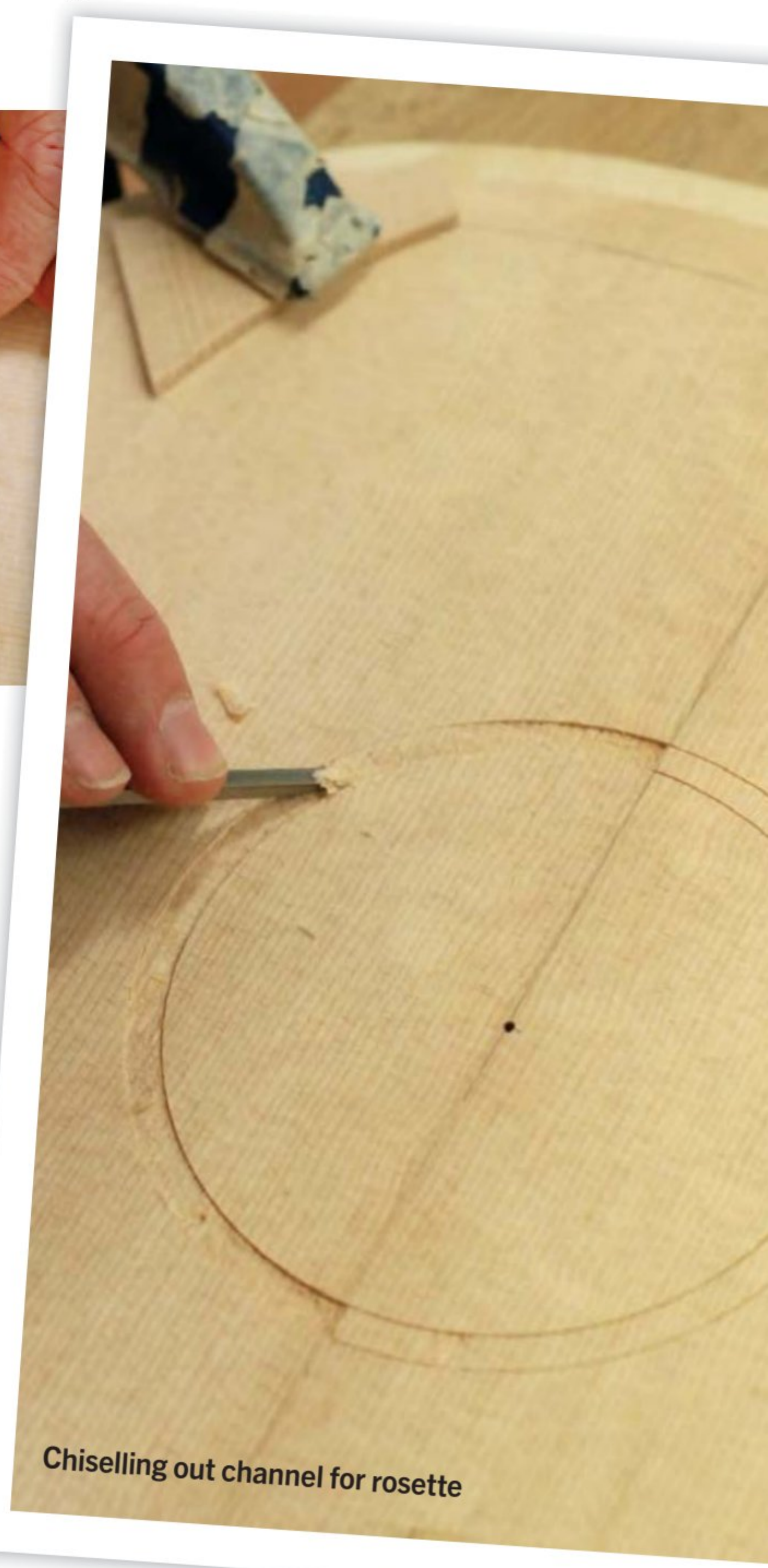
Soundboard

After joining, the outside face of the soundboard needs to be smoothed, using the thickness sander and taking care to remove the minimum of material.

Draw on the outline of the guitar, using the template and aligning on the centreline. Measure from the template where the centre of the sound-hole will be and mark this on the top. A circle cutter with a small spike in the underside will allow accurate cutting of both the inside and outside diameter of the rosette channel to a depth of 1–1.5mm. The

channel width is cut so that the material used for the rosette – for example, a strip of herringbone-pattern purfling – is a snug fit; otherwise glue lines will show around the edge of the rosette.

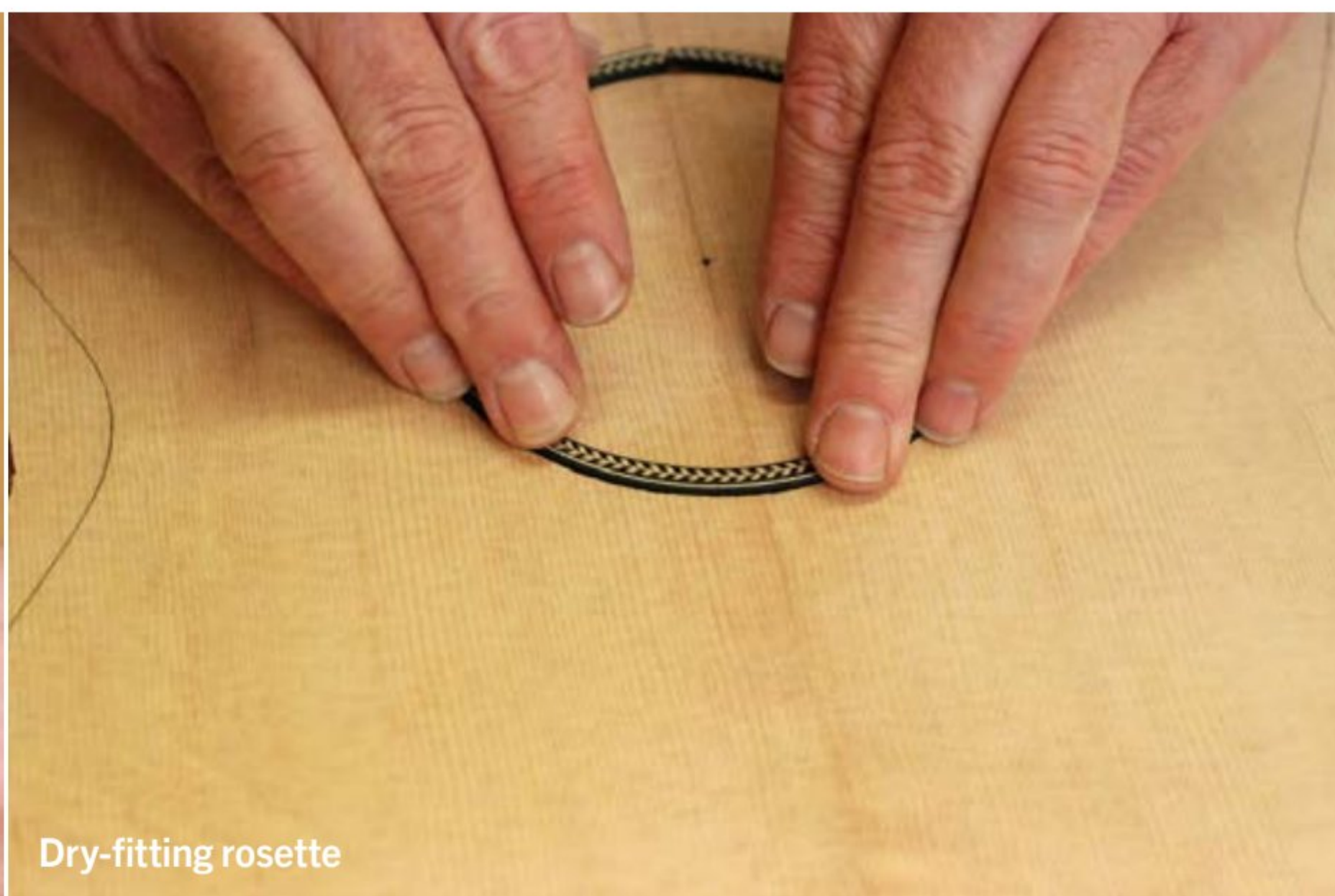
The waste between the cuts is chiselled out using a narrow chisel and a small router plane. The herringbone strip can be bent to suit, using the side-bending iron. Once a good fit has been achieved, glue is applied to the channel and the rosette pushed down into this. The top surface of the rosette should be slightly proud of the soundboard. Once the glue



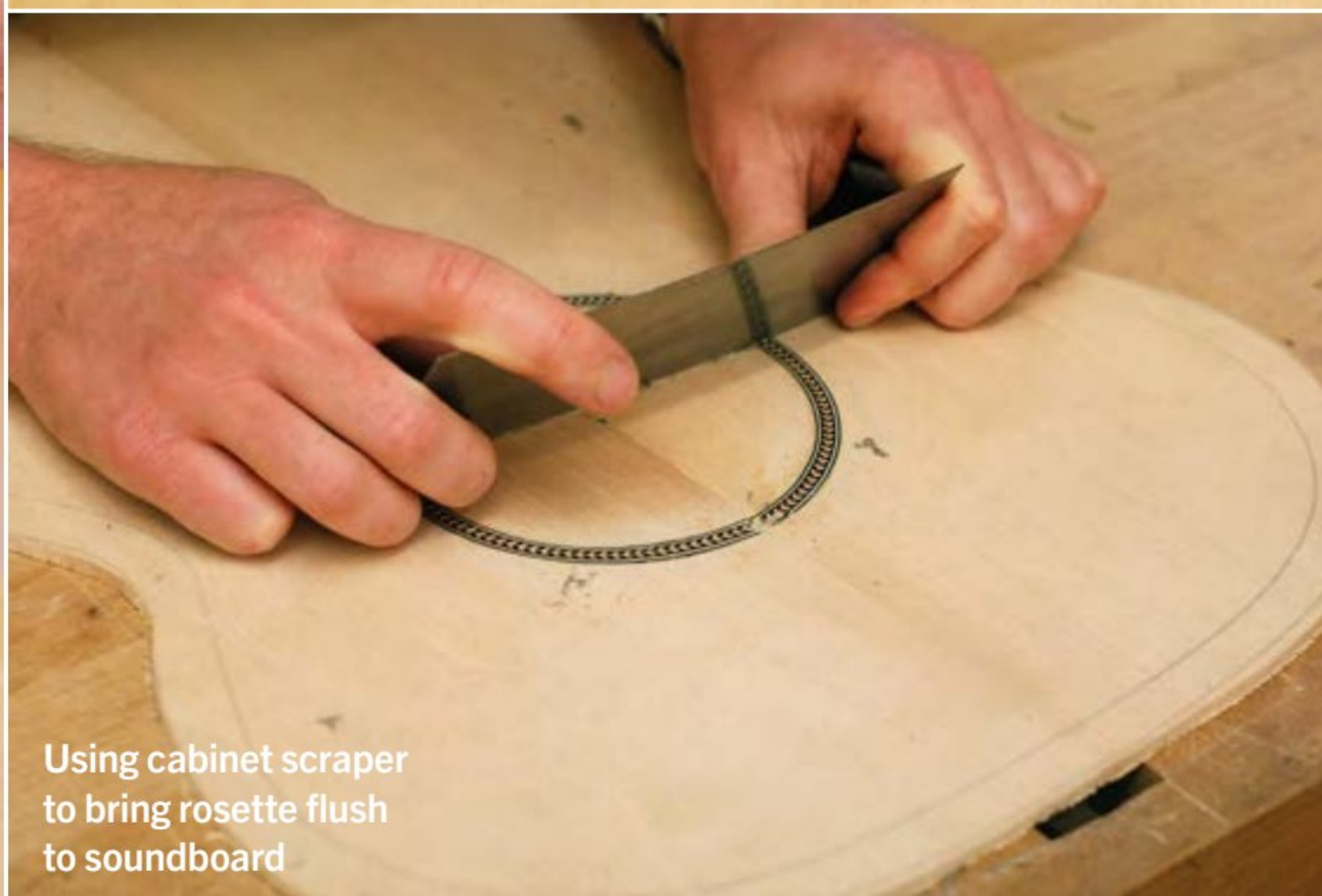
Chiselling out channel for rosette



Bending rosette material



Dry-fitting rosette



Using cabinet scraper to bring rosette flush to soundboard

has dried, it is scraped/sanded flush with the soundboard.

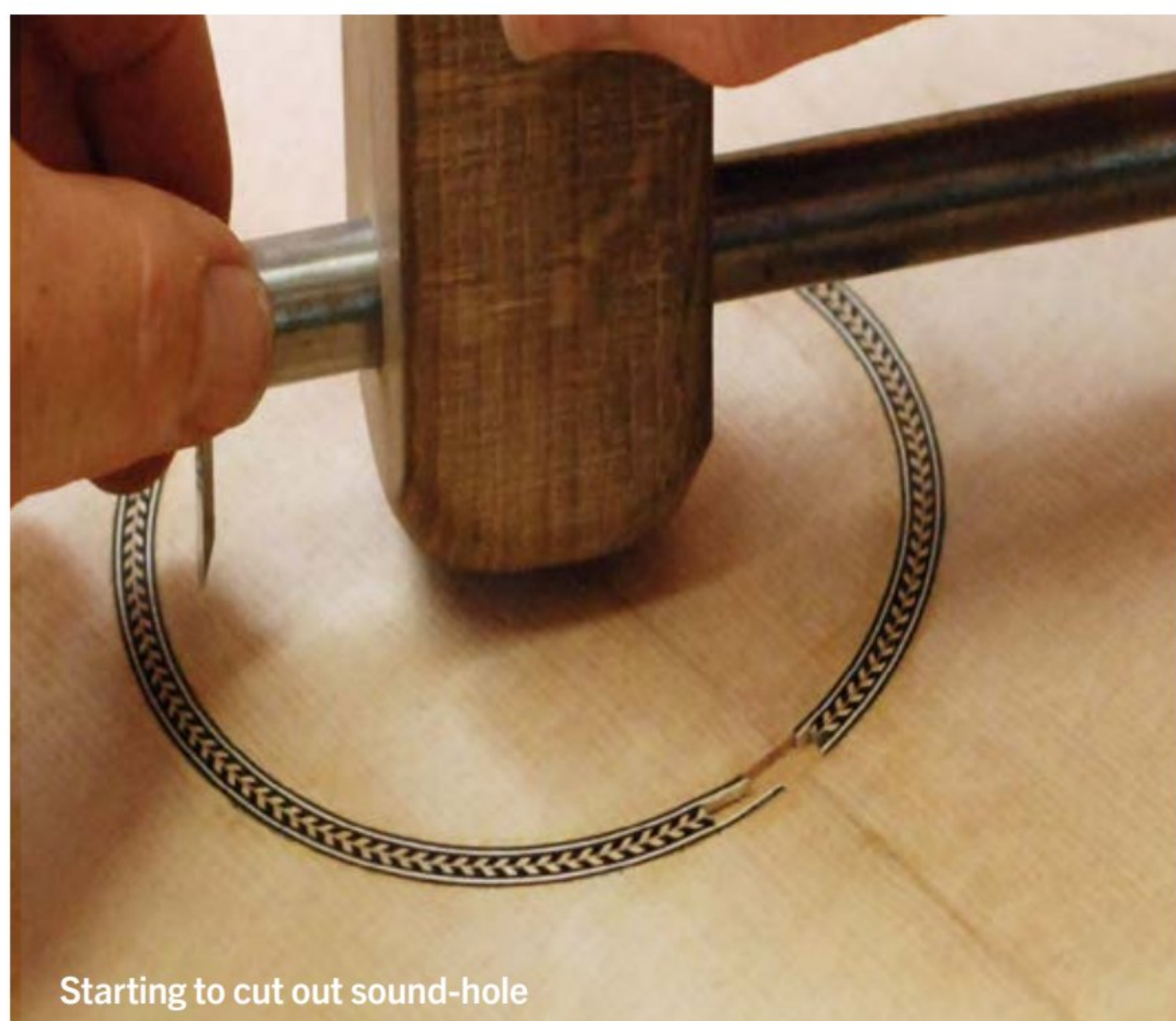
The soundboard is trimmed on the bandsaw to 5mm outside the outline of the guitar, then thickened from the reverse side to the rosette. Top thickening is critical to the finished sound of the instrument, and will vary depending on wood used and how stiff that particular piece of wood is. Sitka spruce is normally thickened down to somewhere between 2.6mm and 3mm.

Cutting the sound-hole

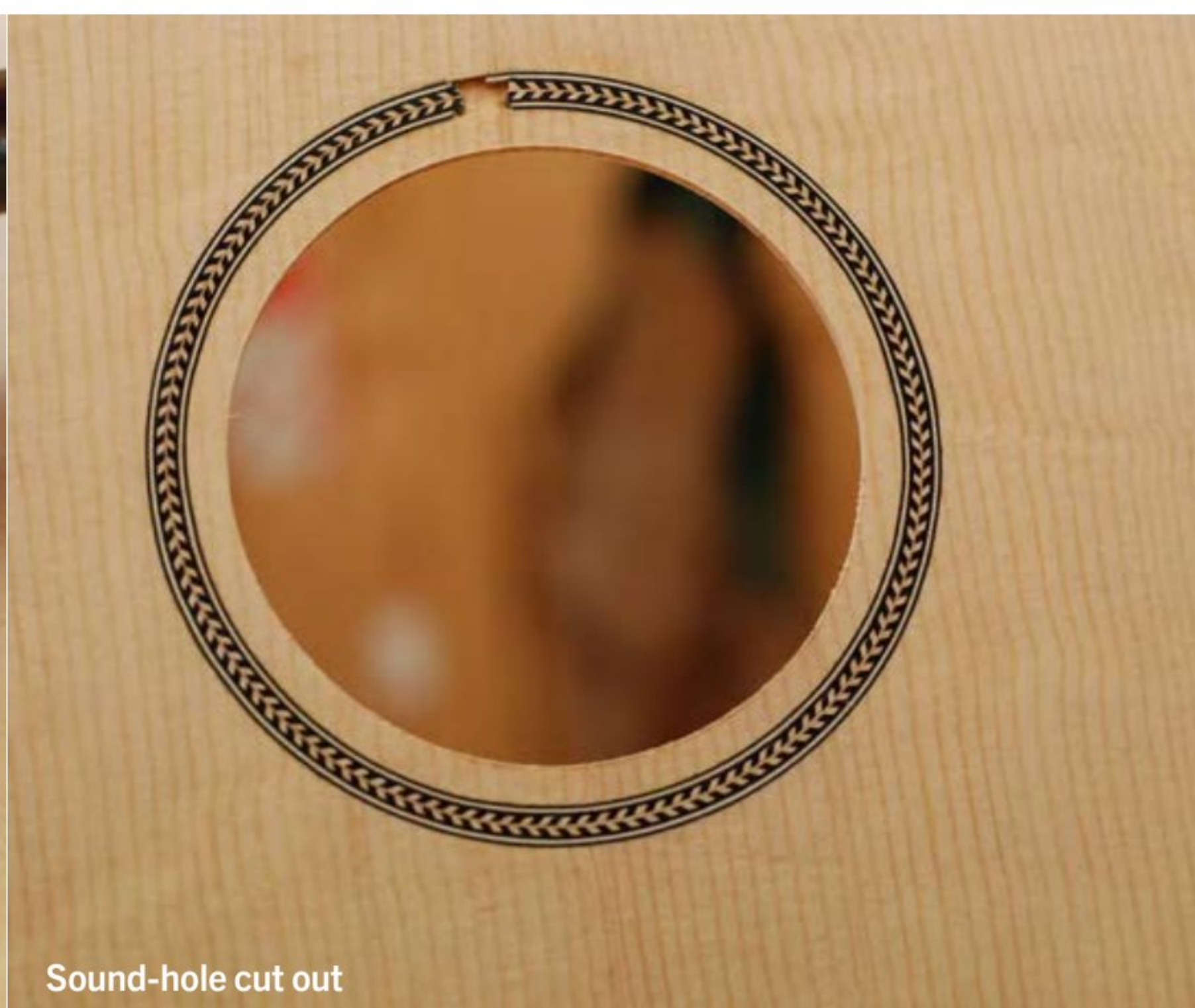
The sound-hole can now be cut out from the rosette side using a circle cutter.

Leave a margin of about 5mm between the inner edge of the rosette and the sound-hole. The soundboard is now too thin to take the tension of the strings without collapsing, so it has to be selectively reinforced with braces. The way these are glued on and shaped will influence not only the structural stability of the guitar soundboard but also the sound. ►

“Top thickening is critical to the finished sound of the instrument”



Starting to cut out sound-hole



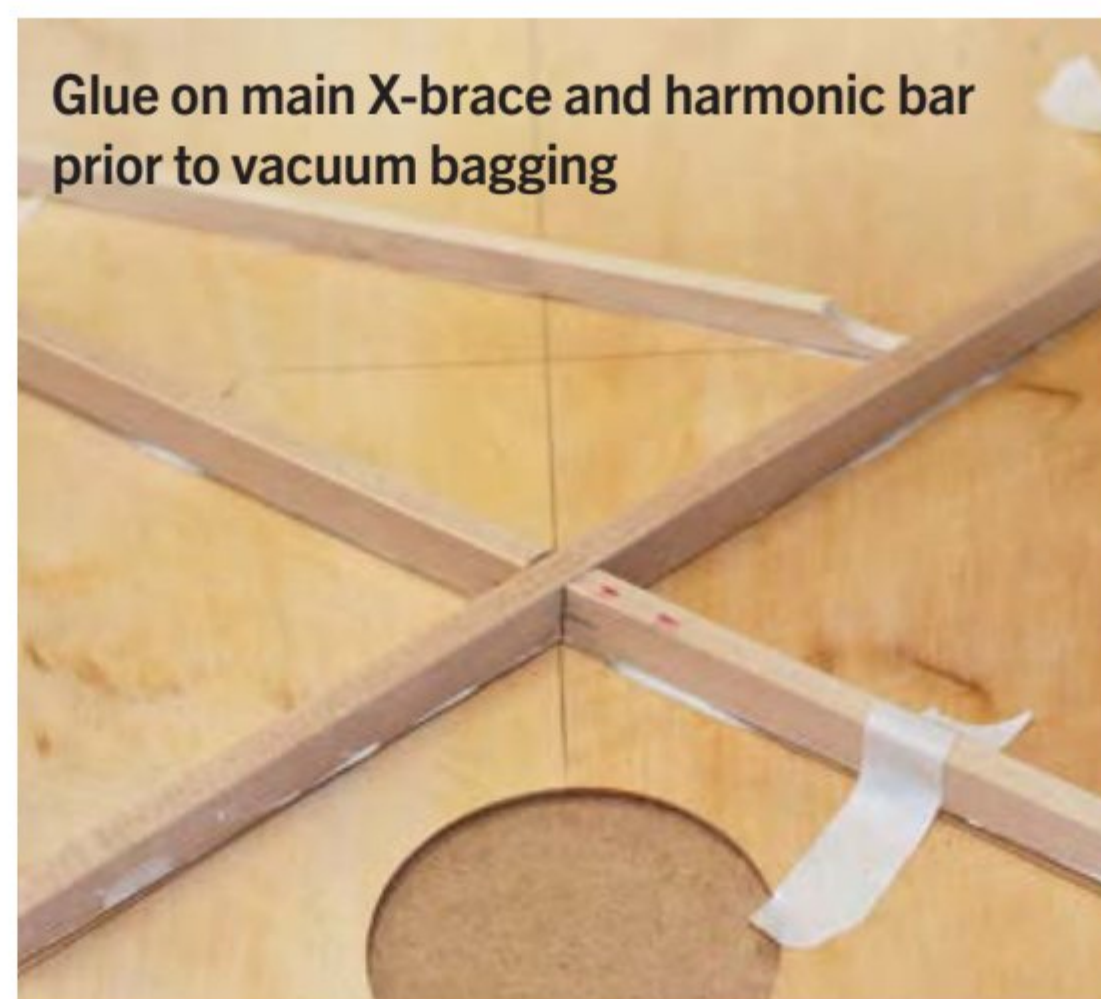
Sound-hole cut out



Soundboard braces dimensioned to template

Mark the layout of the bracing on the underside of the soundboard. All the bracing is sawn from spruce or similar so that it is quarter-sawn (grain runs vertical to the soundboard for maximum stiffness).

The two large braces that make up the X-brace will take the bulk of the load and are 18mm high by 8mm wide. The two lower braces are called 'harmonic bars' and are smaller (12mm high and 6mm wide); the two short braces either side to the outside of the X-brace are called 'finger bars' (6x6mm). There is also a bridge plate that sits between the X-braces and the harmonic bar. This is made from hardwood 3mm thick (maple, rosewood, walnut) and an additional large brace (14mm high by 12mm wide) that runs crosswise above the sound-hole



Glue on main X-brace and harmonic bar prior to vacuum bagging



Vacuum bag used to glue on main braces

with two small braces supporting the sides of the sound-hole (6x6mm).

Similar to the back braces, which have had an arch of 4mm planed into them, the X-braces and the harmonic bars for the top have an arch of 3mm planed on one surface to induce some doming to the soundboard. The larger cross-brace above the sound-hole is arched by only 2mm and has a U-shaped hole cut into it on the centreline, through which an Allen key can be inserted to adjust the truss rod.

Cut a half lap joint in each X-brace where they cross over, so that they can be notched into each other and so that the arched surface will be the gluing surface to the soundboard. It is best to glue on the struts on a low-humidity day. It is easiest to glue the braces on using the vacuum bag in stages, normally the X-brace assembly first, along with the bridge plate, then the two harmonic bars. Once these are glued on, the smaller braces can be clamped using small woodworking clamps, as they can be reached through the sound-hole or from the edge of the soundboard.

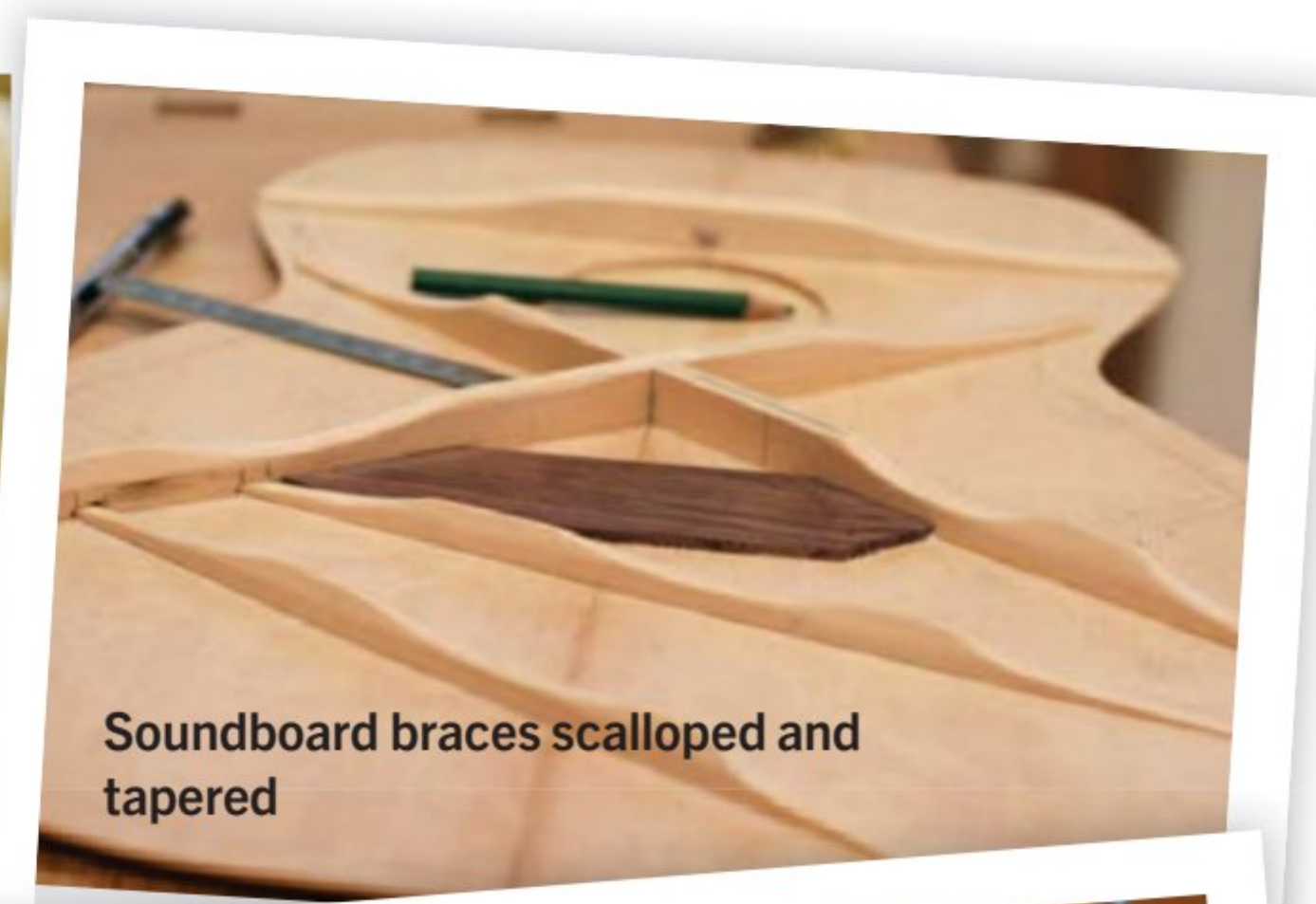
Shaping the braces

The braces are now shaped using chisels, spokeshaves, small planes, and sandpaper to remove some of their weight while maintaining stiffness. The top cross-brace is typically rounded, and the end scalloped down to 3mm to notch into the linings. The X-braces are slightly rounded around the central join, but scalloped down to 3mm at their ends either side of the sound-hole. Below the sound-hole there are numerous options, from running a long taper out to the ends, which are left 3mm high, to removing more material to produce a double-scallop.

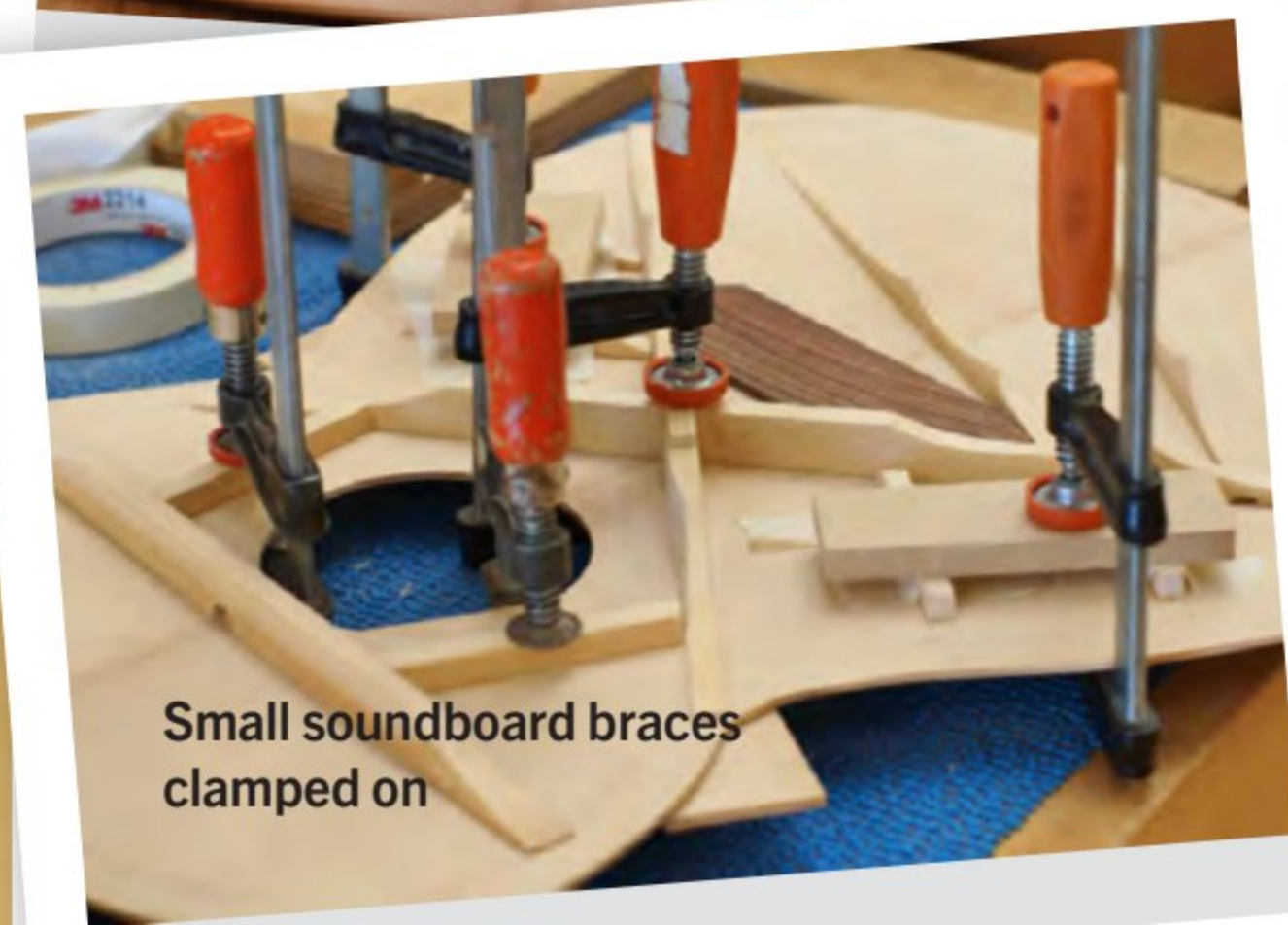
There is a compromise between strength and soundboard flexibility, and it generally better not to be too aggressive in removing material until some experience has been gained. None of the other braces is notched into the linings, and these can be tapered down to nothing about 10mm short of where the lining starts. It is interesting to tap the bridge plate and hear the difference in sound as the braces are shaped. ►



Shaping soundboard bracing around bridge plate

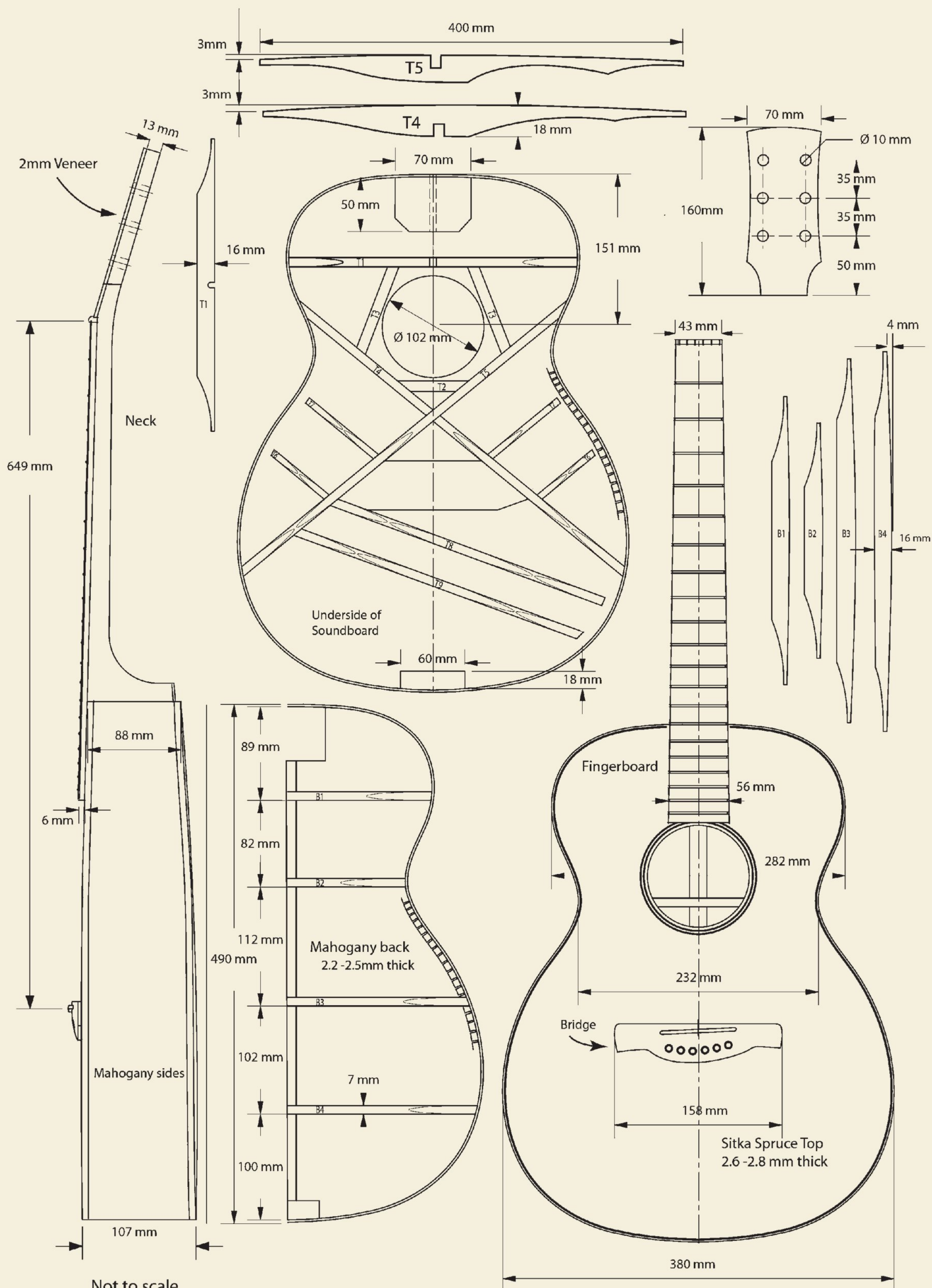


Soundboard braces scalloped and tapered



Small soundboard braces clamped on

Acoustic guitar specifications

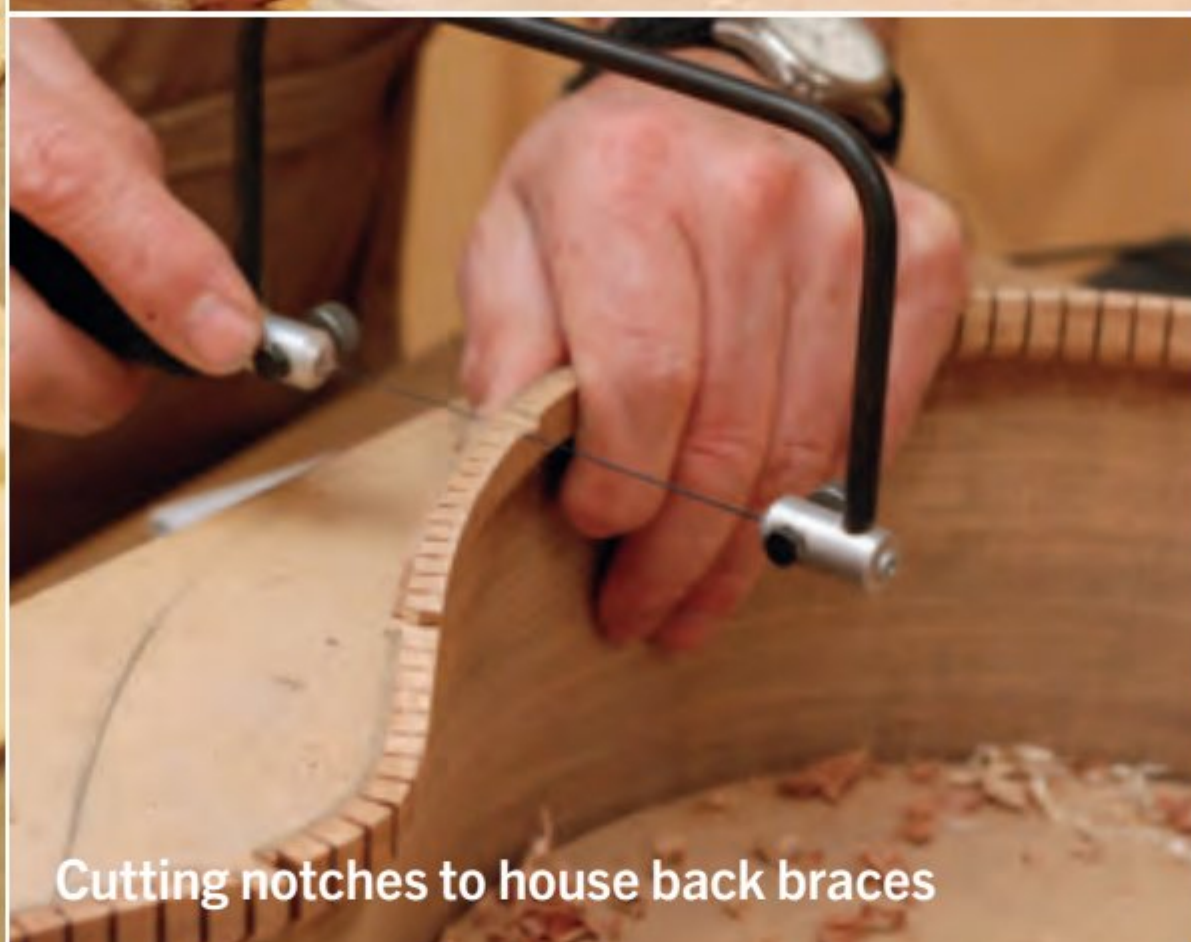


Not to scale

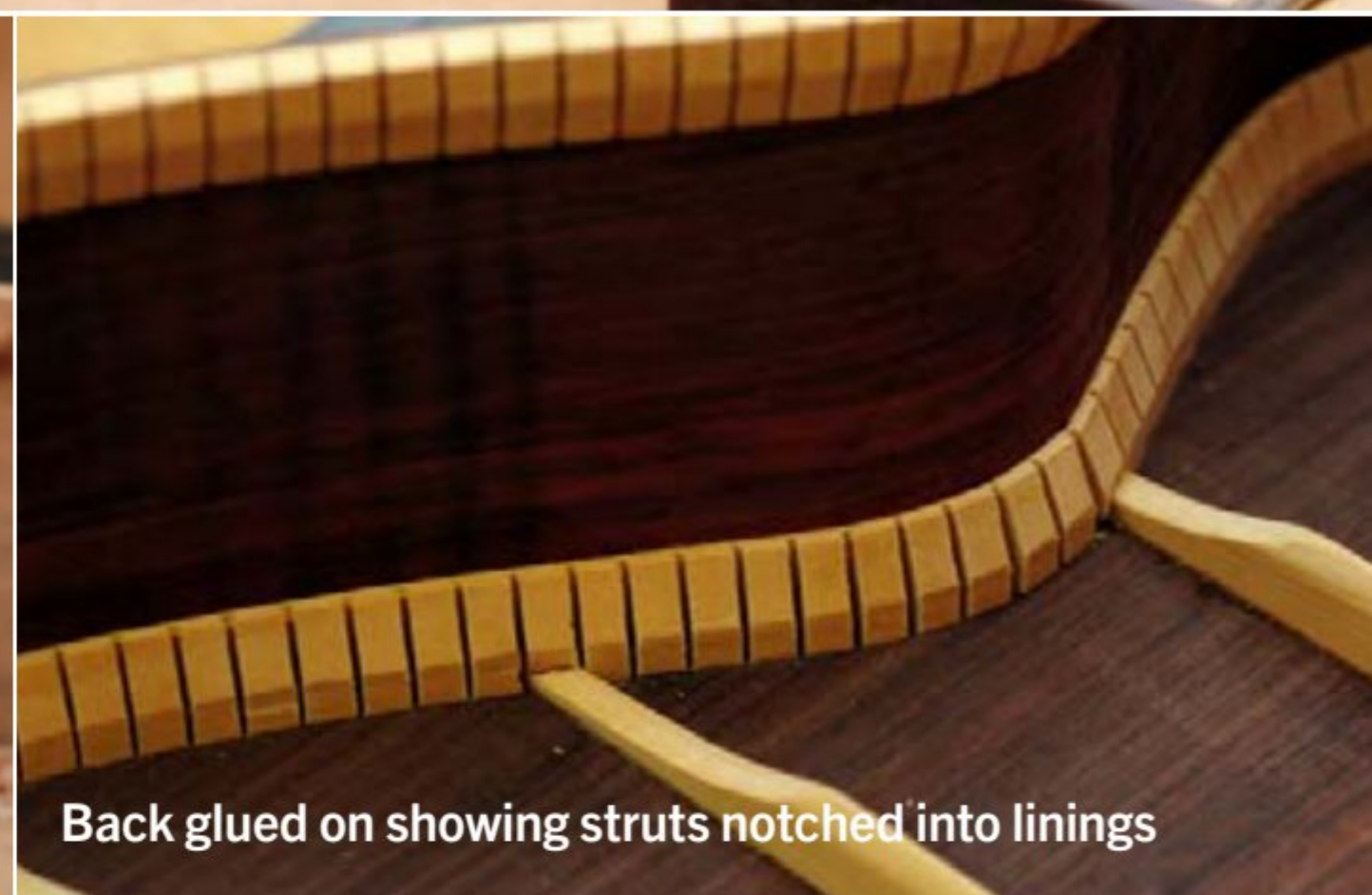
Dimensions are approximate and will vary according to individual preference



Checking notches for top bracing to allow top to sit down on sides



Cutting notches to house back braces



Back glued on showing struts notched into linings

Gluing the soundboard

Place the soundboard onto the guitar body, line it up on the centreline, and ensure that it is placed accurately longitudinally (measure from the sound-hole edge). Mark where the X-brace ends fall on the sides, and also the ends of

the large top cross-strut, and remove notches from the body with a coping saw to house these.

Once the top sits down onto the linings all the way around, glue the top on in a similar way to the back, using plywood pads as clamping cauls on the top.

Once dry, the clamps are removed and the overhang of the top and back is removed using a spokeshave or block plane. It is also possible to use a router with a flush cutting bit.

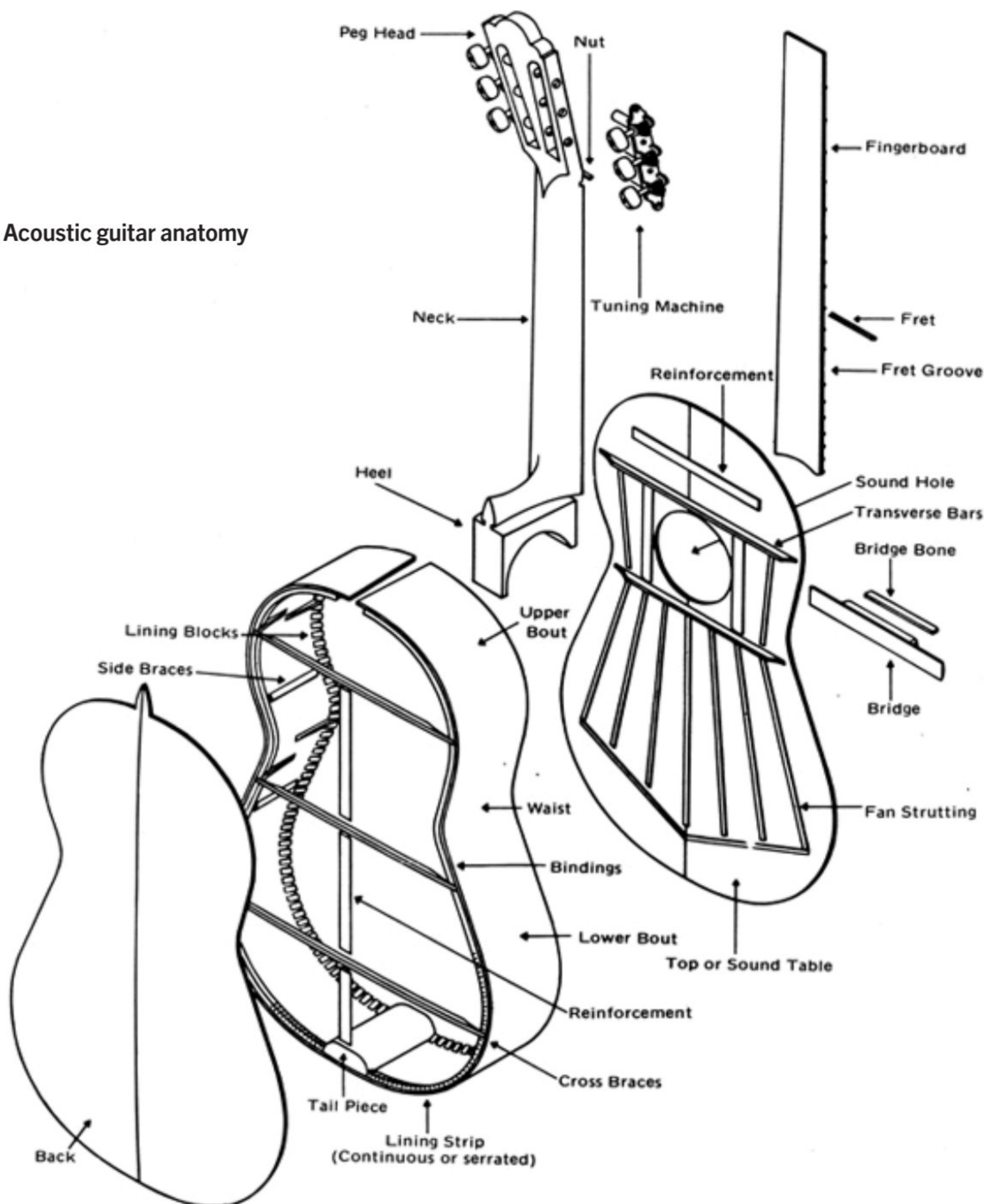
Where the sides meet at the tail of the guitar, it is customary to cut a recess and glue in a wedge-shaped piece of wood to match the intended bindings. The wedge tapers from 10mm to 20mm, with the wide end at the soundboard. The guitar can be held upright in a foam-padded vice, and a small steel ruler can be stuck to the end of the guitar to serve as a guide for a marking knife or a razor saw to cut and chisel this wedge-shaped piece out of the tail to a depth of about 1mm.

Take care to avoid cutting too deeply into the end of the soundboard or the back. The wedge is dry-fitted to ensure a tight join and then glued in with a weight placed on top. The wedge can be made overlength as it is trimmed back later when binding ledges are cut.

Next, a ledge is cut all the way around the back and the soundboard side of the guitar to enable gluing on a hardwood binding. This helps seal the end-grain of the soundboard and back, and is also aesthetically pleasing. The binding wood is based on the creation of a pleasing contrast with the back and side wood – for example, dark rosewood against a mahogany body or light maple against a rosewood body.

Each piece of binding covers a quarter of the guitar's outline, so that they meet on the centreline at the heel and the

Acoustic guitar anatomy



tail-block. A small router or laminate trimmer is used to rout the ledge 7mm deep and 2mm wide using a custom-made guide. This allows you to control the depth and width of the ledge. It has a long guide that bears against the side of the guitar so that the ledge is routed vertically rather than following the contours of the top or back.

Because this small router's guide bears on the side of the guitar, the guitar sides must be scraped/sanded all the way around. This also removes all glue blobs, hollows, and bumps that will affect how it runs.

Decorative strips called 'purflings' can also be inlaid inside the bindings. Something as simple as a strip of black/white between the soundboard and the binding can really make the top stand out. Obviously, if these are used, the router has to be adjusted for the greater ledge width.

Bindings

Bindings/Purflings are made slightly taller than the ledge at 8x2mm, and slightly overlength for each half of the side, and bent on the hot iron.

A baseboard of thick MDF is made to the outline of the guitar and screws driven into the edge every 30mm or so. Foam or bubble wrap is used under the perimeter of the guitar to avoid crushing the dome of the top or back when tension is pulled onto

the string that holds the binding on. Dry-fit one section of binding on the soundboard side while using cardboard to protect the unbound side of the guitar from dents due to the string.

Mark the centreline of the guitar on the binding at each end, then remove the binding from the guitar and trim it to length. Apply glue to the binding ledge and glue on the binding, using the wraps of string, starting from the centre of the tail-block and working your way up the guitar.

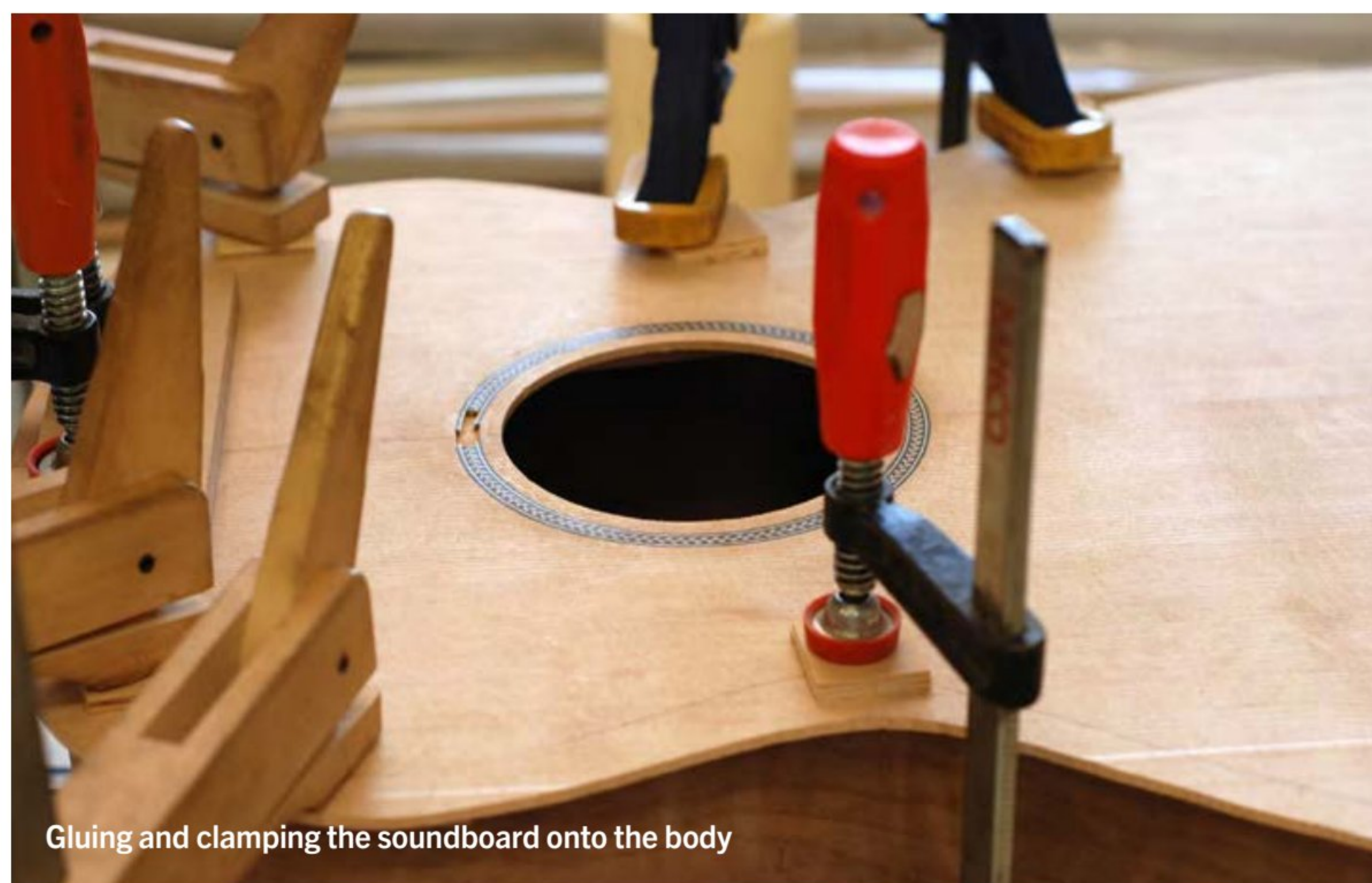
Once the glue is dry, remove the string and dry-fit the binding for the other side. Trim to butt up against the other binding, then glue on. Repeat for the back bindings.

Use a cabinet scraper / sandpaper to clean up glue squeeze-out and to

“Take care not to remove too much thickness in the bindings”

scrape the binding height down to the guitar body. The bindings will also need scraping around the sides to tidy up the join with the body. Take care not to remove too much thickness in the bindings when doing this.

Finish-sand the body with 180-/320-/400-grit abrasive paper. ►



Gluing and clamping the soundboard onto the body



Bending binding on a hot iron



Showing binding ledges cut, binding pair ready to trim



Back glued on while sides in mould



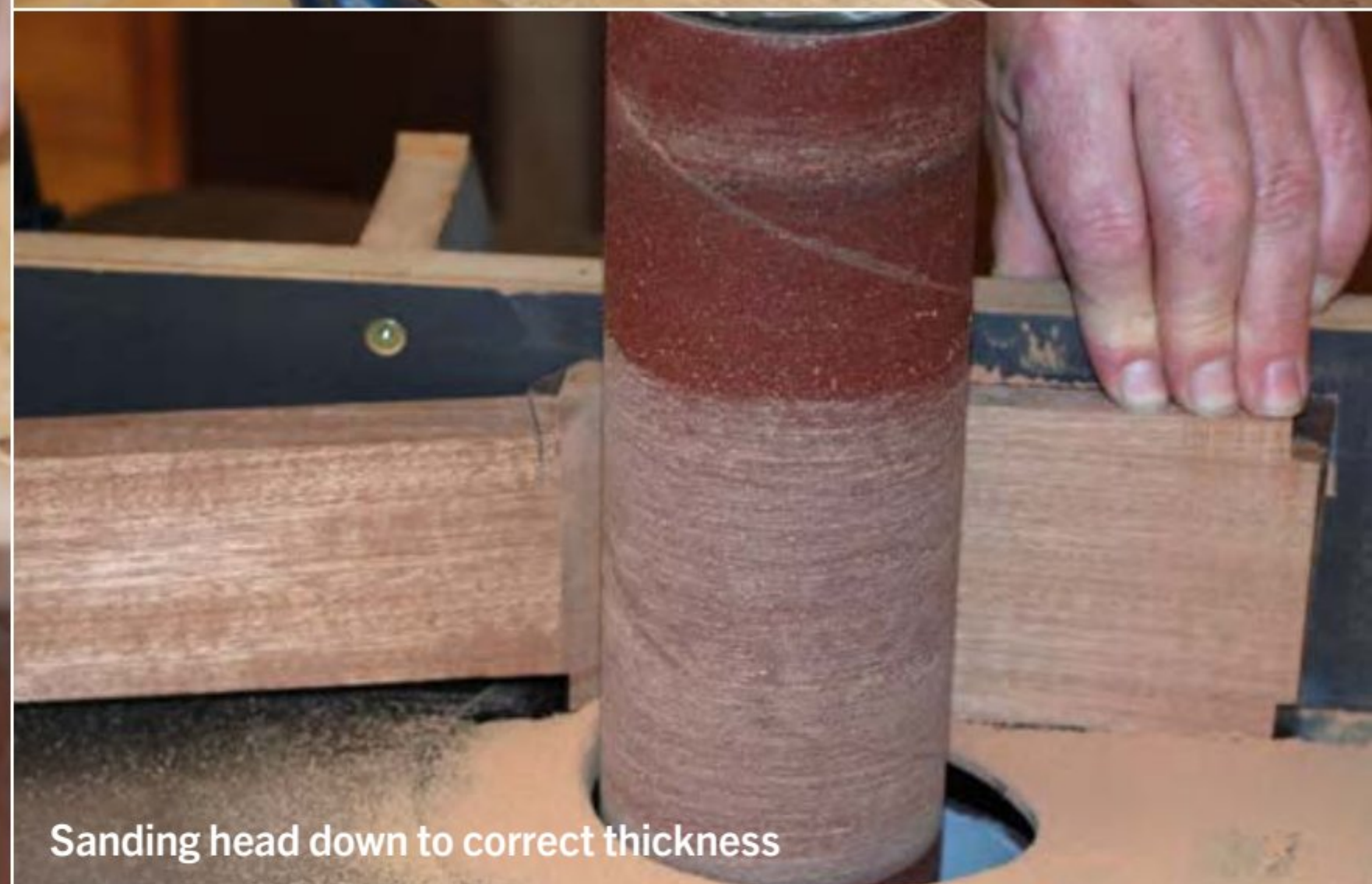
Neck angled with scarf joint



Spokeshave in action



Planing tapers into sides of heel



Sanding head down to correct thickness

The neck

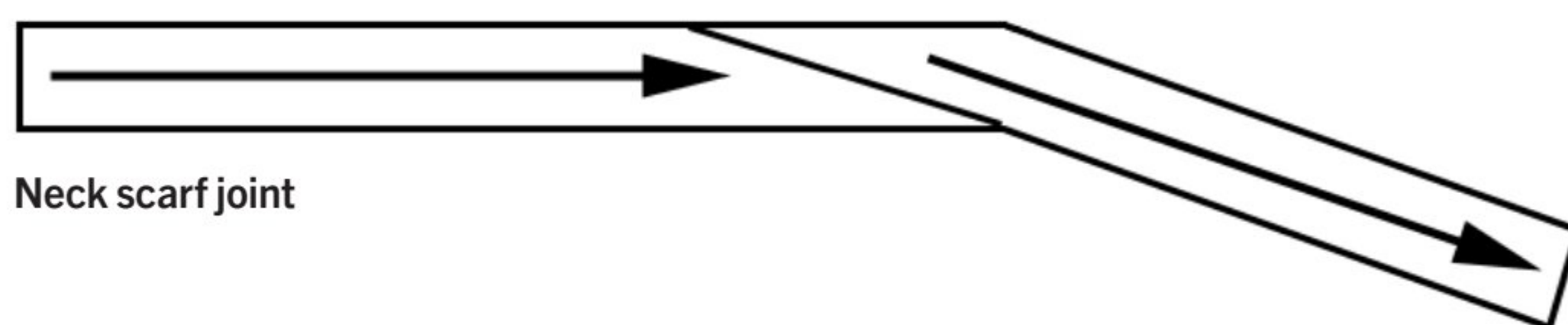
A neck blank is prepared from quarter-sawn stable timber to 30mm thick, 820mm long, and 60mm wide.

Remove 200mm from one end. This will be cut into shorter lengths and stacked up to build up thickness to make the heel.

Thickness the remaining blank down to 2mm. The head of the guitar tilts back from the neck at an angle of approximately 10 degrees. This change in angle occurs just behind the nut, and is accomplished by making a scarf joint.

Square a line around the neck blank 75mm from the head end. Using a bevel gauge set to 10 degrees, mark a line that will indicate the angle for cutting. Cut using a handsaw, a bandsaw, or a jig on a table saw.

You will now have a short and a long



Neck scarf joint

piece of wood with a long taper at one end. Flip the shorter piece over, and place it on top of the longer one so that the angle runs as one surface.

It will be rough-sawn and need planing smooth. Ensure that only the minimum of material is removed and that the planed surface remains square to the sides of the neck.

When the wood is smooth, align the pieces so that the planed surface of the headpiece contacts the underside of the longer piece. Slide the headpiece along until the combined thickness of the head/neck tapered pieces is 14mm,

and mark across the join with a pencil. Glue together.

There will be a large amount of excess thickness at the top end of the headpiece. This can be removed by plane until the head is a constant thickness of 14mm.

Truss rod

A slot is now routed along the length of the centreline of the neck on the fingerboard side. This is because the neck is reinforced internally with a metal rod called a 'truss rod'. This has a threaded end that can be tightened to



Setting up router for truss rod



Showing scarf joint planed, reinforcing wings on, and truss rod slot



Gluing on reinforcing wings

induce a curve in the neck to counteract the pull of the strings.

In an acoustic guitar, truss rods are often placed so that they can be adjusted via the sound-hole with an Allen key. The rod is glued into a slot that is routed into the neck; after the fingerboard is glued on, it is invisible. Truss rod dimensions can vary, so measure width and depth that the slot will need to be before routing on a router table. The aim is for a snug fit of the rod into the neck so that it sits just below the surface of the wood.

The length of the slot is routed so that the adjuster on the truss rod will sit approximately 5mm above the large cross-strut at the top of the soundboard.

Square a line across the neck where the change of angle for the head occurs, and square this around the neck. This line is where the back of the nut will sit.

The head is too narrow, so the scarf joint needs reinforcing on the sides. Glue a 10mm wide strip of wood to either side of the head. When the glue is dry, plane down to match the already planed surface.

Providing support

A 2mm head veneer is glued onto the head surface to strengthen the scarf joint and also to provide support for the back of the nut. Use numerous clamps and a thick clamping caul to ensure it is glued on flat.

Ensure that the nut end of the veneer extends 2–3mm beyond the pencil line that was squared around the neck to define the back of the nut. This is because the nut sits flat on the neck. The change of angle for the head occurs immediately behind it. Therefore, where the nut sits against the head veneer, the veneer has to be trimmed so that the edge is square to the neck both vertically and across the neck. This is best accomplished with a shoulder plane.

This edge now becomes a reference point for marking out the rest of the neck. Measure and mark out 5mm from this edge. This will be where the fingerboard starts at the front of the nut, also called the 'zero fret' position. Measure from here

to the 19th fret position. This defines the end of the tenon that will engage with the mortise in the heel block and that supports the underside of the fingerboard. Cut off the excess length.

Mark on the neck surface, the width of the fingerboard from the nut to the 19th fret position. Using a scale length / fret spacing chart from a set of plans, measure from here to the 14th fret position. This is where the neck joins the body. Square a line around the neck.

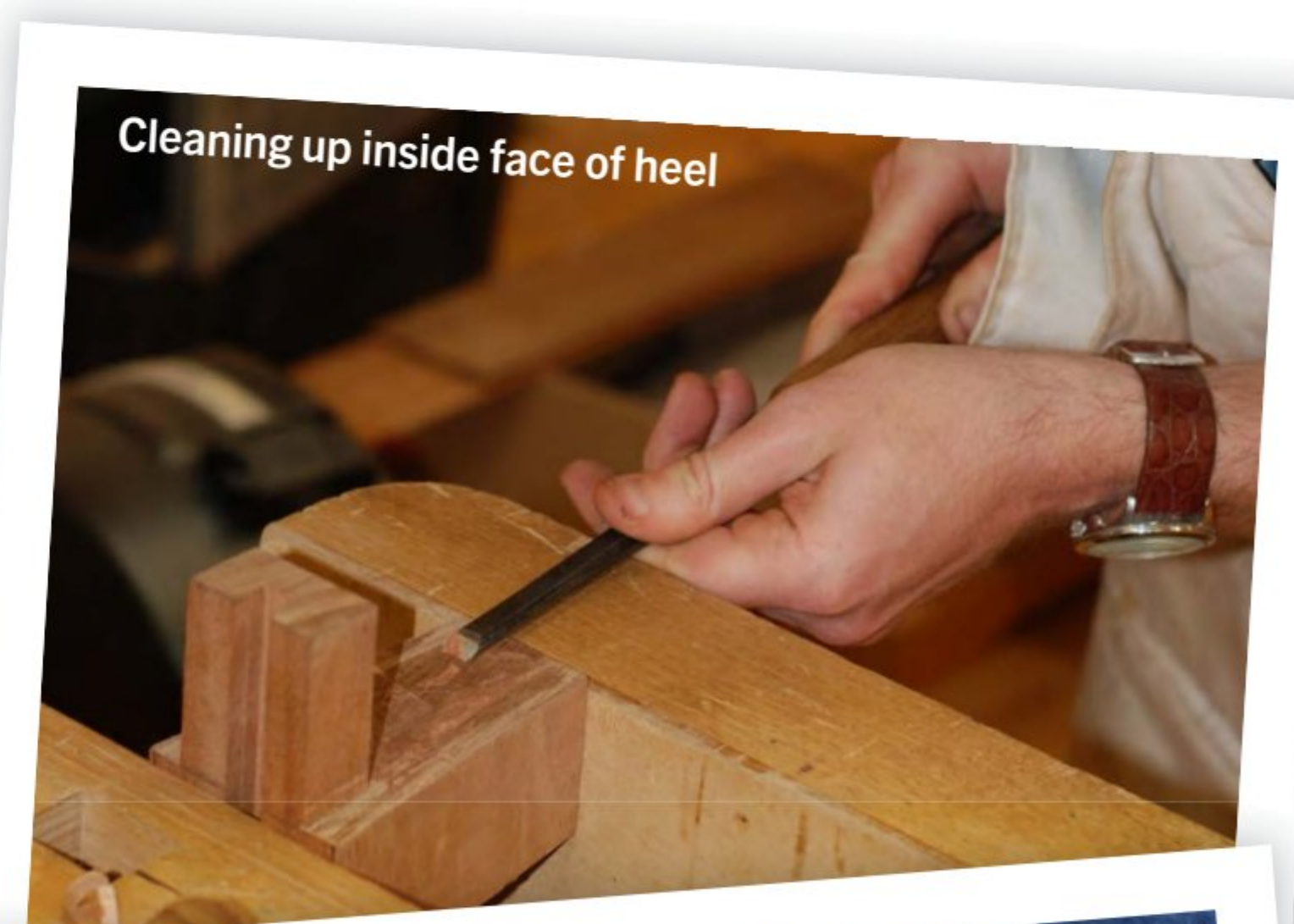
Heel block

The offcut that was removed from the neck blank is cut into three shorter lengths of 60mm. The combined depth of these blocks plus the neck blank thickness should be the same as, or slightly more than, the body depth at the heel.

The blocks are stacked on top of each other and glued to the underside of the neck blank at the 14th fret line. The end closest to the body extends 5mm beyond the 14th fret line. This will allow a small amount of material that can be trimmed to a flush fit when the neck-to-body join is finalised. ►



Head shaped and drilled for tuners



Cleaning up inside face of heel



Drilling holes for neck bolt threaded inserts



Very wide chisel being used to pare back to line marking join to body

Roughing out the heel

The neck area at the heel is roughly shaped to within a couple of millimetres of the final shape. The final thickness of the neck plus fingerboard at the 12th fret is 22mm. The fingerboard thickness will be 6mm, so mark on the sides of the neck at the 12th fret 22mm minus 6mm = 16mm. Draw a curve from here up the sides of the heel block so that approximately 22–25mm of heel remains towards the head side of the 14th fret line. Bandsaw the excess off.

Also bandsaw off the excess material outside the lines defining the width of the fingerboard. Leave about 1mm surplus on each side. The heel is tapered in width from the neck to its far end by approximately 5–10mm each side. This taper is marked, and the sides of the heel planed to this line. The tenon joint is marked next, to a width of 50mm about the centreline, and the extra width trimmed off. Mark a corresponding width and length on the body where the tenon will fit into the top of the heel block, and use a razor saw and chisel to remove the waste from the mortise.

Trim the mortise so that the tenon is a snug fit for width. It is important that the neck centreline is in perfect alignment with the body centreline. Do not make the mortise the full depth of the tenon yet; leave 5mm, as this will be adjusted when the tilt back of the neck angle has been worked out.

Neck angle

The neck is tilted back slightly to accommodate the curve in the soundboard and to give the correct working height of the strings over the frets and at the bridge. Check the following: the top surface of the neck is flush with the soundboard at the neck-to-body join; a straight edge is placed along the top surface of the neck extending over the soundboard; there is 4mm clearance between the bottom of the straight edge and the soundboard at the point where the saddle sits.

We haven't trimmed the mortise/tenon joint flush yet because the base of the mortise will need to be trimmed to a corresponding angle. We need to take this into account by adding the height that the neck sticks out of the mortise at the neck-to-body join – for example, if the neck sits 5mm proud then the height above the soundboard at the saddle should be 9mm, taking into account the 4mm clearance.

Place the neck in the mortise and adjust its tilt until the correct height is achieved. Take a bevel gauge and place the body of the bevel gauge on the neck top and the sliding bevel against the body at the same angle as the tapered side of the heel. Tighten the bevel gauge.

Check on the other side of the heel that this angle matches – it should. Remove the neck and place it side up in a vice. Then use the bevel gauge at

the 14th fret mark and score the angle down both sides of the heel block with a marking knife. Use a fine saw to cut down to the edges of the tenon just on the body side of the scored line, and remove the waste with a wide chisel.

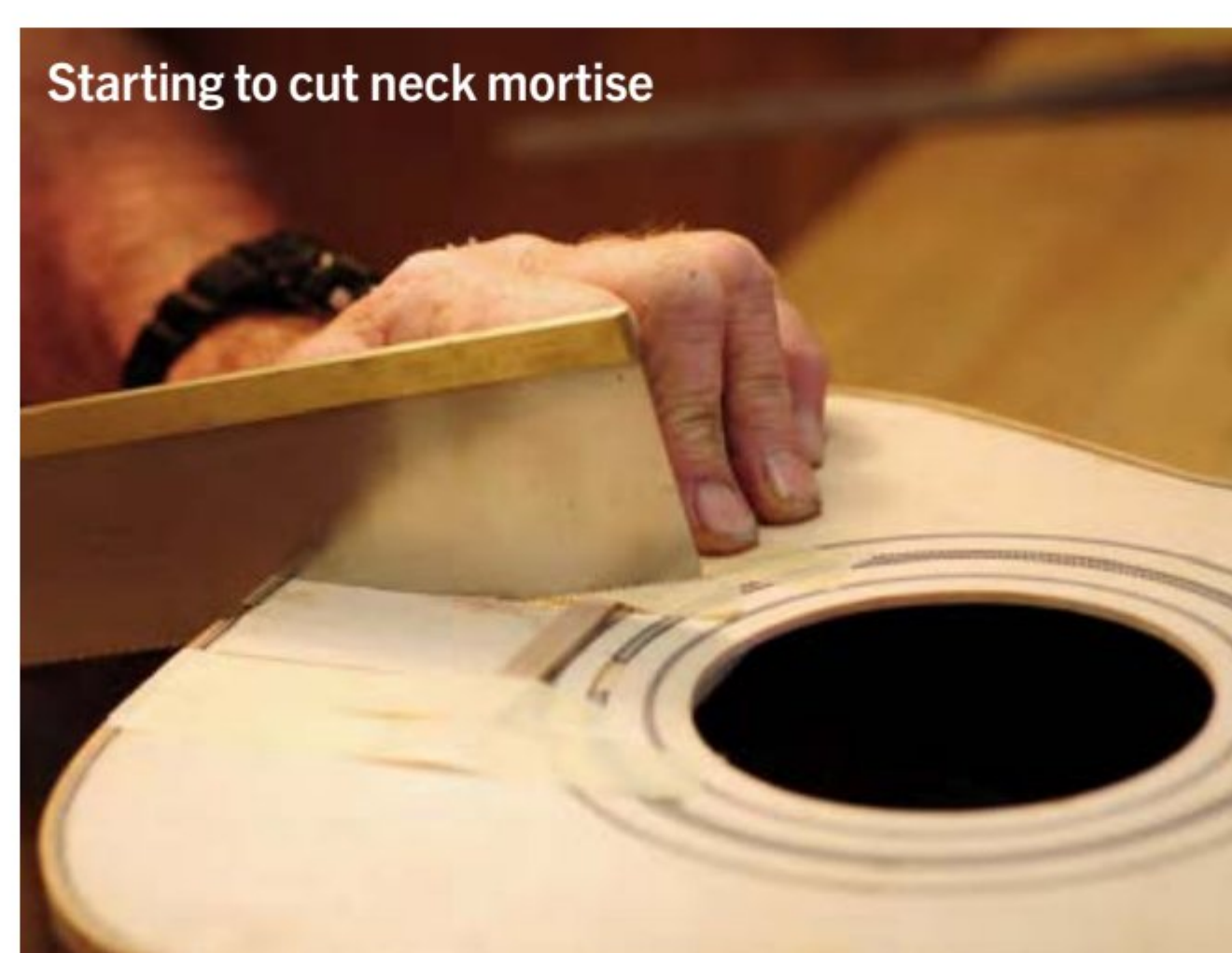
Pare back to the knife line with a sharp chisel, and remove the excess wood on the face of the heel that contacts the body to allow this surface to meet the guitar. It should now be a close fit to the body and give the correct neck angle. Now, trim the base of the mortise in the body to lower the neck until it is flush with the soundboard.

Double-check the neck angle height and centreline and the fit of the heel to the body. Using a spur-point drill bit from the inside of the guitar, mark on the inside face of the heel the position of the heel block bolt holes. Drill and fit appropriate threaded inserts into the heel so that the neck can be bolted on.

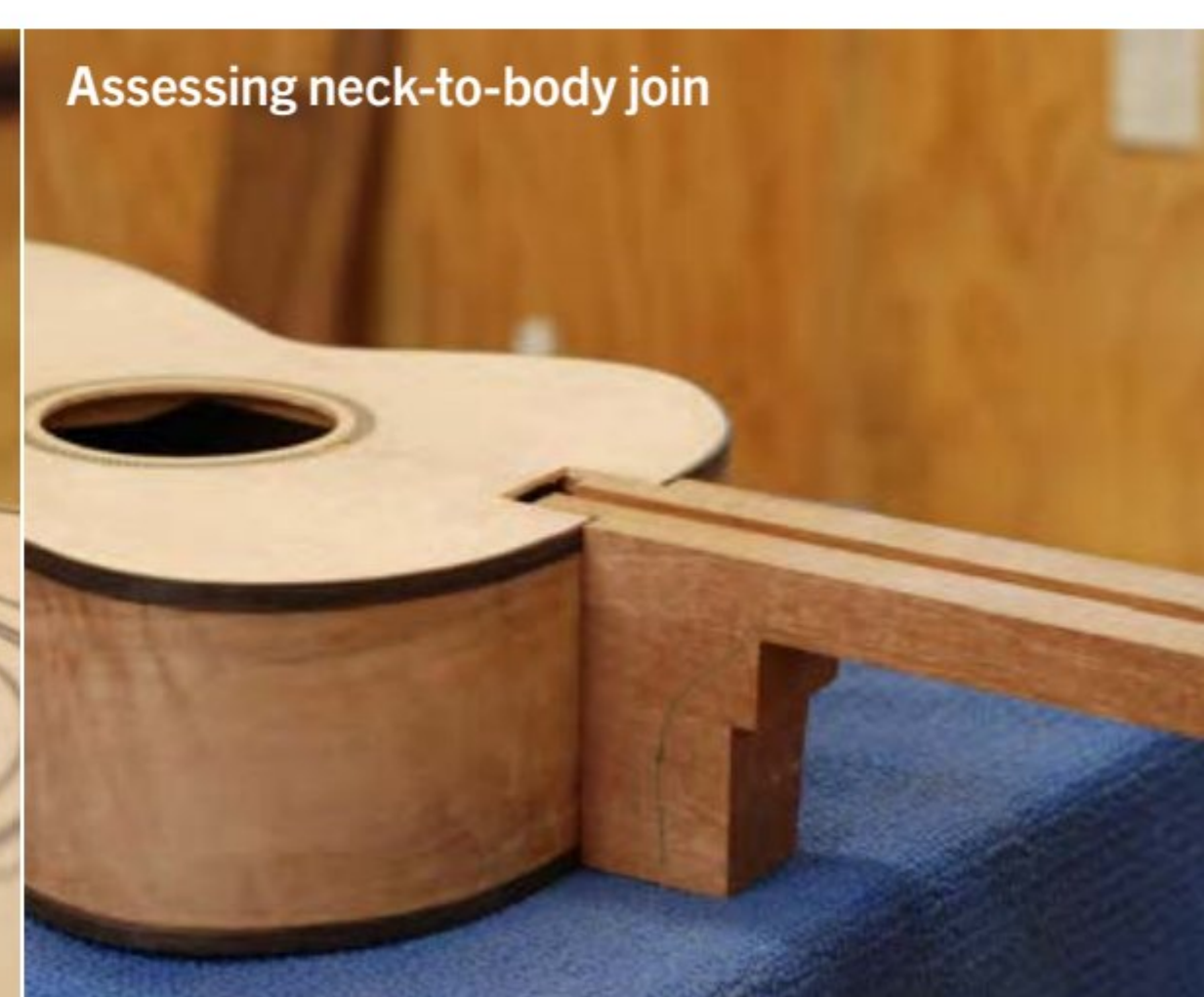
Place the truss rod in the truss rod slot and ensure that the adjuster end of the truss rod fits under the soundboard without interference. If it doesn't fit, the truss rod slot may have to be made slightly deeper with a chisel.

Once it fits well, fasten it into the truss rod slot as recommended by the supplier – some truss rods are epoxied in; others are fixed in with silicone sealant.

In the final instalment of this three-part project – which will appear in the next issue of *The Shed* – we fit the fingerboard and frets, and complete the guitar. 📦



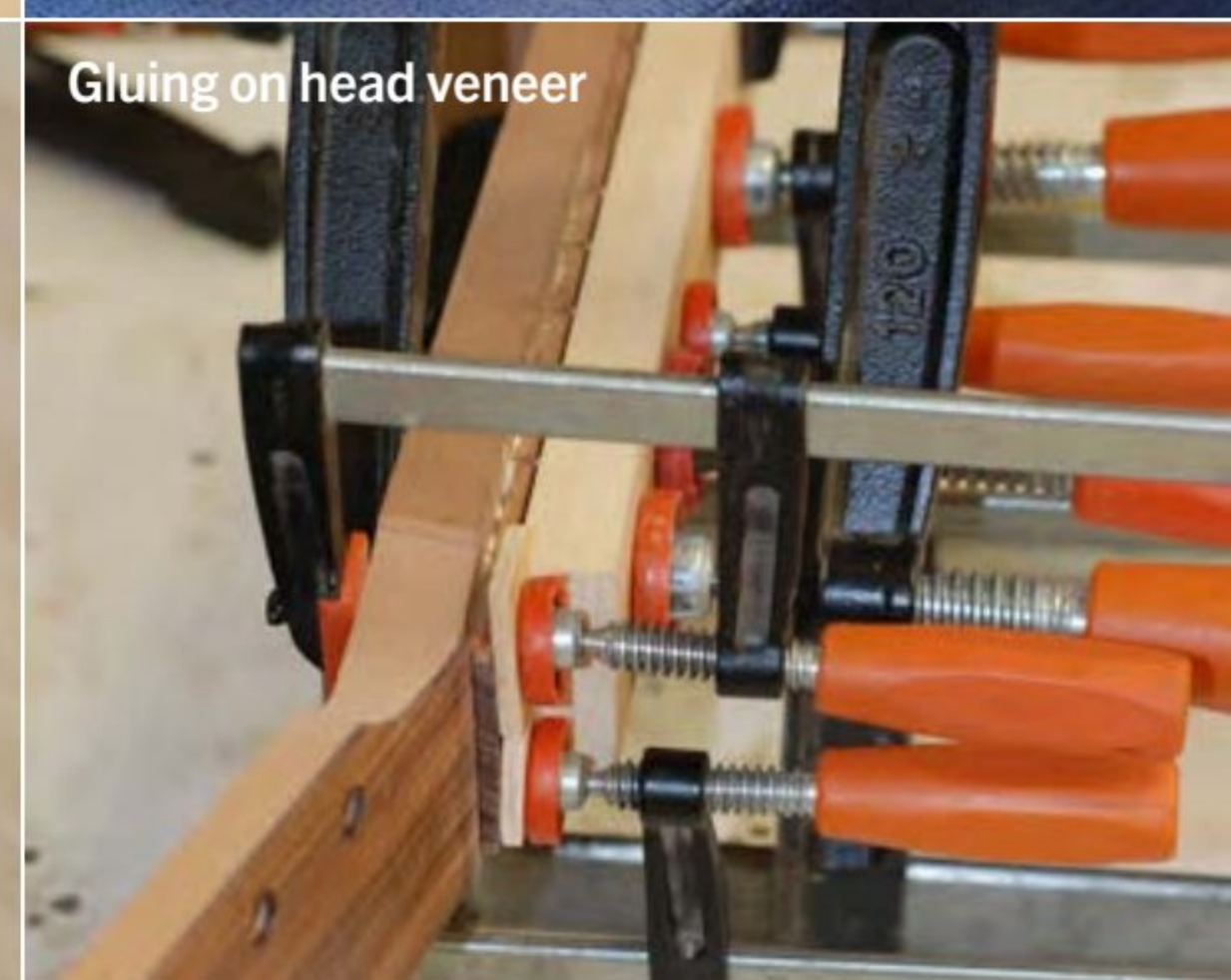
Starting to cut neck mortise



Assessing neck-to-body join



Showing threaded inserts on inside face of heel



Gluing on head veneer

MITRE 10

**Here's to 50 years
of pretty awesome
customers.**



50 YEARS

WITH YOU ALL THE WAY

mitre10.co.nz

THE WHERE DREAMS ARE MADE REAL
Shed
**SUBSCRIBE
& SAVE**

NEVER MISS AN ISSUE

FREE DELIVERY TO YOUR HOME

SAVE UP TO \$22 OVER RETAIL

FAST FACTS NUMBER 8

Save, Save, Save! When you subscribe to *The Shed* magazine, you save hugely over the retail price, you never miss an issue, and the magazine is posted to your place – **FREE**. Save your hard-earned \$s, subscribe or renew today.



SUBSCRIBE TODAY



MAGSTORE.NZ



ONE YEAR
\$84

SAVE 22%!

SIX MONTHS
\$45

SAVE 17%

ONE-YEAR
DIGITAL
SUBSCRIPTIONS
AVAILABLE FROM

\$35

TO SUBSCRIBE
VISIT [MAGSTORE.NZ](https://magstore.nz) OR CALL 0800 727 574

The Shed magazine subscription terms and conditions:

- Prizes/Gifts are as stated, not redeemable for cash and the publisher's decision is final. No correspondence will be entered into.
- Prizes/Gifts are administered by the respective magazine publisher. If the subscription purchaser is a giftor, prizes/gifts will be sent to the subscription recipient unless requested otherwise by the giftor.
- Prizes/Gifts are available to New Zealand residents only.
- Prizes/Gifts are available/applicable for direct subscriptions purchased through Magstore only and are not applicable for third-party subscriptions.
- Staff, friends, and clients (and their immediate families) of the publishers are not eligible to enter.
- All entries become the property of the participating publishers and may be used for further promotional purposes.
- Prices quoted refer to New Zealand addresses only.
- Prices quoted apply to subscriptions purchased through Magstore only.
- Savings quoted apply to New Zealand per-copy RRP.
- All Magstore magazine subscriptions, are non-refundable for whatever reason. For our complete terms and conditions, see magstore.nz/pages/terms-and-conditions.

PHONE 0800 727 574 OR VISIT [MAGSTORE.NZ](https://magstore.nz)

MITRE 10

1974–2024: THE FIRST 50 YEARS

PART 1

The orange and black livery is a well-recognised sight throughout New Zealand, but Mitre 10 is not only a hardware store

By Nigel Young

Photographs: Supplied



Sketch of Mitre 10
Wellington, 1982



McAlpines of Rangiora was the first South Island member of Mitre 10, joining the cooperative in 1975

“By pooling their resources, they could each offer a unified marketing model, using economies of scale to set better prices”

Australian origin

The history of the company has two strands. The first is the Australian one, which stems from the original formation of Mitre 10 in Melbourne in 1959 by eight local hardware stores. The initial meeting was on 29 June at the home of Reg Buchanan in Balwyn, Victoria. It was also attended by Jack Womersley, Tom Molomby, Tom Danaher, and Ian Nesbit.

These men are considered to be the founding fathers of Mitre 10, with an aim to establish a building and hardware supplier group. By pooling their resources, they could each offer a unified marketing model, using economies of scale to set better prices and allowing them to compete with larger hardware stores.

There is some ambiguity over the origins of the name – one being the local Mitre Tavern where subsequent meetings took place, the other being the 90-degree corner connection of two pieces of timber. The initial logo suggested the latter,

although the suggestion is that it was only after Mitre 10 had been established that, “the word mitre had a link with the hardware industry”.

Mitre 10 expanded to other states, and, by 1984, an overall licensing company had been established. The stores were still largely independent until the creation of a national structure in 2000. Mitre 10 became an unlisted public company in 1975 and was eventually fully bought out by Metcash in 2010.

New Zealand expansion

In *The Mitre 10 Story*, by former CEO Gordon Gellen, Jim Mason – the first CEO – writes in the introduction: “the recognition that Mitre 10 sprang from Australian loins is still paramount. But, dare I say, the child has outgrown the parent!”

The importation of products and the formation of new companies around this time was strictly controlled, particularly when there was an Australian connection. Mitre 10 (Aust) had previously registered the name Mitre 10 (NZ), but it was on the strict understanding that, to trade, the Australian Mitre 10 would be required to transfer ownership to a fully New Zealand-owned company.

Gellen continues, “the New Zealand Reserve Bank authorities [needed convincing] that Australia had no ulterior motive in helping New Zealand hardware people to establish a Mitre 10 operation. The fact that the Australian motives were so altruistic entirely escaped the New Zealand officials and was simply not believed”.

This altruism was eventually accepted by the Reserve Bank in 1974, and on the 20 June, Mitre 10 (NZ) came into its own.

Interestingly, this coincided with a period when an economic and political union between New Zealand and Australia was considered, which would effectively make New Zealand the eighth Australian state.

The catalyst

The decision to include New Zealand in the Mitre 10 company led to the search for a suitable anchor business and general manager, and, in 1973, the Manukau Timber Company, with three



Reg Smith, father of Mitre 10 chair Andrew Smith, behind the counter in Christchurch, 1976

Home Centres throughout Auckland, was identified as such. It was both a building materials and hardware supply company, with good growth and – more importantly – good directorship.

Jim Mason, the brother of one of Manukau Timber's board members, was sent to Sydney to meet John Wright, chairman of the Australian National Mitre 10 Company. It was Wright who had identified Manukau Timber and Mason as "the catalyst to start Mitre 10 in New Zealand".

Mason described the process in this way: "Timber merchants adding building materials and hardware to their range and moving into the customer field are finding the prospects quite exciting.

Recognition that there is a vast, relatively untapped retail market is rapidly changing the pattern of trading."

He was aware of the constant increase in housing stock, with its demand for additions and alterations, the introduction of new building products, improved materials and appliances and the like, and the increase in leisure time combined with a growing range of activities: "Boating and gardening – although poles apart – are two particularly good examples."

Some opposition

Mitre 10 and the concept of a cooperative retail company had some opposition. The world of guilds, associations, and



Jac's Hardware & Timber Company joined Mitre 10 in 1978



“Ironically, many of the members of the Guilds and Federations begged to join Mitre 10 later when it became obvious that was the way the market was heading”

federations – which represent the interests of a huge range of professions, trades, and industry organisations, and which tend to be loosely divided into employer and labour union entities – felt threatened.

Manukau Timber acquired WH Foote and Co., a member of the Hardware and Plumbing Guild, to gain access to products otherwise denied to it. The guilds targeted Manukau Timber as the face of Mitre 10, using the threat of boycotts and vetos to both them and their suppliers.

Mitre 10 (NZ) still had strong links with Mitre 10 (Aust), which, in turn, had influence with the major brands. Black and Decker continued to supply Mitre 10 (NZ) due to its success with Mitre 10's Australian counterparts.

Ultimately, this was reversed – once the success of the New Zealand Mitre 10 model became apparent: Gellen writes, “Ironically, many of the members of the Guilds and Federations begged to join Mitre 10 later when it became obvious that was the way the market was heading.”

In 1987, the Federation of Guilds merged with the NZ Retailers Federation, an organisation that would eventually become Retail NZ, of which Mitre 10 is a member.

The ever-changing political environment

What is worth noting is the social and political environment that the fledgling company was entering.

Six weeks after Mitre 10 began, Prime Minister Norman Kirk died. He was replaced by Bill Rowling and subsequently Rob Muldoon, who began three terms as both prime minister and minister of finance – a controversial move, as the two roles were traditionally assigned to different ministers.

Muldoon's election would have an impact on retailers. He imposed a levy of between 10 per cent and 20 per cent on a number of locally manufactured items, including pottery and crafts, boats, caravans, and lawn mowers – resulting in the collapse of these industries and the inevitable rise in unemployment. This coincided with the decline in New Zealand's export revenue due to Britain joining the European Economic Community (EEC) in 1973, and the oil shocks of the same year, which led to car-less days and the eventual building of the Marsden Point Oil Refinery – one of the Think Big projects that Muldoon introduced as a means of making Aotearoa New Zealand more self-sufficient.



Interior of a Mitre 10 store, circa 1970s – how times have changed

Westport's Martin & Co.
joined Mitre 10 in 1976

Inset: Martin's Mitre 10
Westport becomes a
Homecentre in the old
blue branding



A new government

A snap election called in 1984 went against Muldoon, and he was replaced by the Third Labour Government of David Lange and his finance minister Roger Douglas, who immediately floated the New Zealand dollar, with a resulting drop of around 20 per cent.

Mortgage rates rose to around 23 per cent, and the borders were opened for the importing of products that would compete directly with local ones. This gave greater accessibility to overseas products such as power tools, which boosted the DIY nature of Kiwis. The greater range of goods also saw a shift in Mitre 10, from being primarily a hardware and building materials merchant to the broader product base it has today.

Roger Douglas also slashed government positions and established the state-owned enterprises (SOEs), many of which would be privatised. In small towns such as Westport, the resulting loss of jobs, combined with the subsequent bans on mining and forestry, would undermine the viability of the community, contributing to an unemployment rate of around 17 per cent.

Westport initiative

Yet this was the time that 80-year-old ironmongery company Martin and Co., Est. 1896 – the local Mitre 10 contributing hardware store – decided to build new premises.

“Greater accessibility to overseas products such as power tools, which boosted the DIY nature of Kiwis”

A visit to the new Ashburton Mitre 10 Homecentre, followed by a trip to Auckland to visit other hardware stores and Homecentres, culminated in the

decision to build a 750m² store at a cost of \$600K. It opened in September 1988. Twenty years later, it was replaced by new premises with around three times the retail area.

Director Kevin Scanlon observes, “Governments come and governments go, but communities such as ours will still be there. Our family has always believed that there would be a positive future in Buller.”

Scanlon emphasises the close community nature of Westport, one in which the spirit of the community is cooperation and fitting in with other organisations. He continues, “Even local sporting bodies coordinate their activities as much as possible in order to give the locals as much opportunity as they can.”

To that end, Mitre 10 has built new playgrounds and play spaces for all but two of the primary schools and kindergartens in Westport, with the remainder planned for this year. The business is now into its fourth generation under the ownership of Troy and Casey Scanlon – a model that reinforces the legacy of both the endurance of Buller and the original decision to be incorporated into the Mitre 10 cooperative. ►



Arthur Hopwood purchased the Beale Bros hardware shop in 1902

Changing times

GST was introduced in 1986 at 10 per cent, then increased to 12.5 per cent in 1989. In 2010, it was raised to the current 15 per cent. Saturday trading was reintroduced in 1980, having been banned since 1945, with Sunday trading following in 1990. Parallel importing was introduced in 1999.

I asked Brian Glassey – who was with WH Collins and Co. Ltd, established in 1888, for which he started working six years prior to the formation of Mitre 10 MEGA Ashburton in 1974 – about coping with the political and social changes that he had seen. Keep in mind that this period included the transition to decimal currency in 1967, the strict import controls that required ordering stock up to 12 months in advance, and the shift from stock being sold by weight in paper bags to the advent of the individual packaging of items and the impact of this on our environment. He shrugged his shoulders and said, “We just did.”

Change was managed, procedures were put in place, and people coped. If anything, it was the staff who helped the customers through the changes, reinforcing the community-minded nature and roots of the store.

“The Beale Bros hardware shop in Palmerston North, established in 1898, is typical of the other strand that brought about the formation of Mitre 10”

Contributing businesses

There simply isn't the space to mention all the contributors to the Mitre 10 story, one that encompasses individual timber and hardware stores, existing retail groups, and local trades and services. The local ownership aspect of the cooperative model ensures that local specialists are contracted to service and maintain each Mitre 10.

The Beale Bros hardware shop in Palmerston North, established in 1898, is typical of the other strand that brought about the formation of Mitre 10. This store was subsequently bought by Arthur Hopwood and merged with his ironmongers, to become the Hopwood Hardware Co. in 1902. In 1949, Hopwood formed the Arthur Hopwood Charitable Trust, which makes annual grants to local charitable organisations. These grants are still available and are now administered by the Public Trust.

Into the mix must also be thrown the stories of True Value Hardware and Hammer Hardware, which merged in 1999, and whose buying was ultimately incorporated into Mitre 10 (NZ) Ltd.

Hammer Hardware is also a member-owned cooperative, separate from Mitre 10, and maintains 42 stores under its own branding, largely in the smaller centres.

Technical trajectory

On the tech front, the first computer was installed in 1982, and, by 1998, Mitre 10 had launched the first New Zealand hardware industry website.

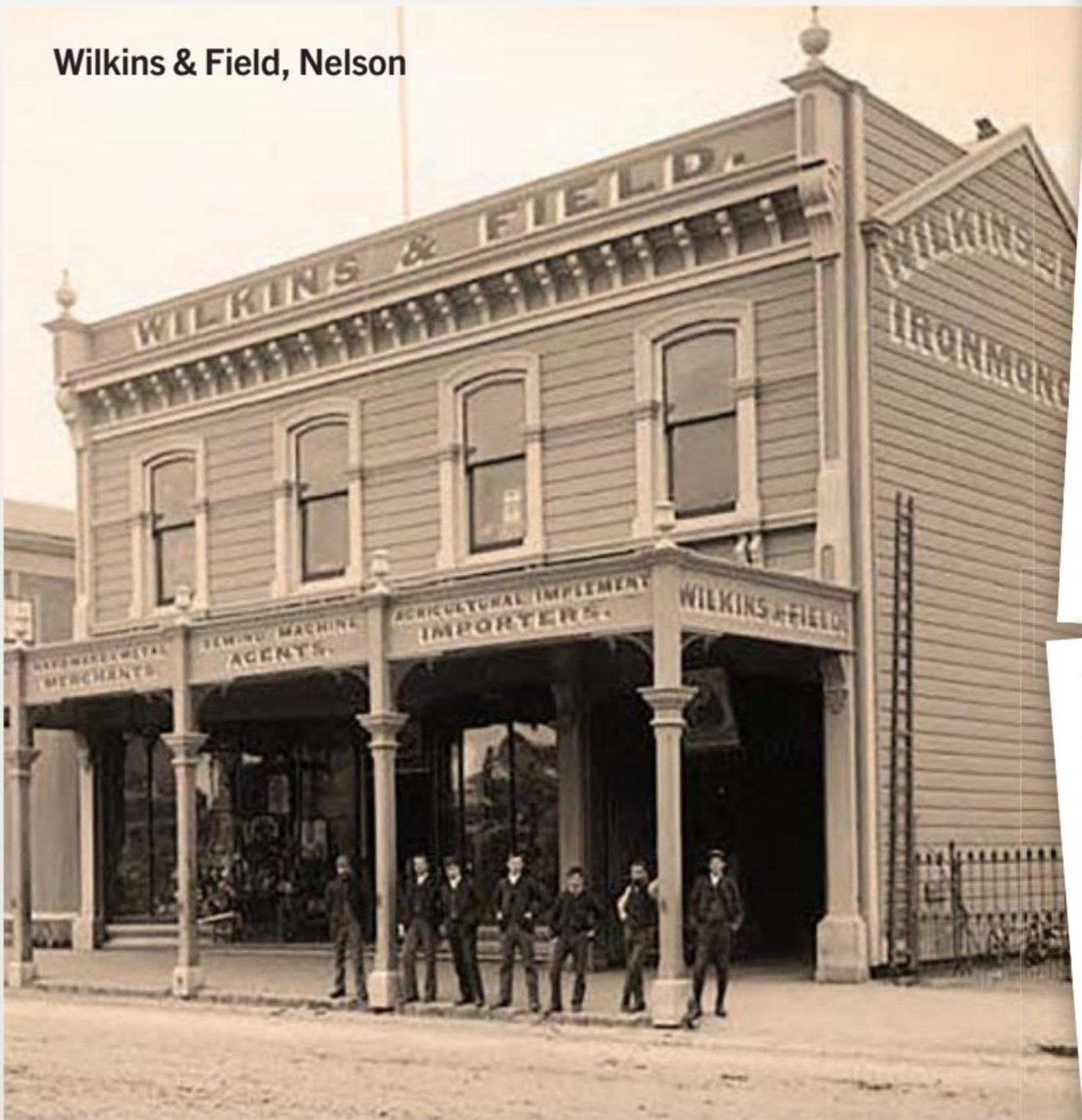
The introduction of computerised stock and sales brought with it the

Pain & Kershaw,
Martinborough, 1930



Mann Hardware Ltd,
Tauranga

Wilkins & Field, Nelson



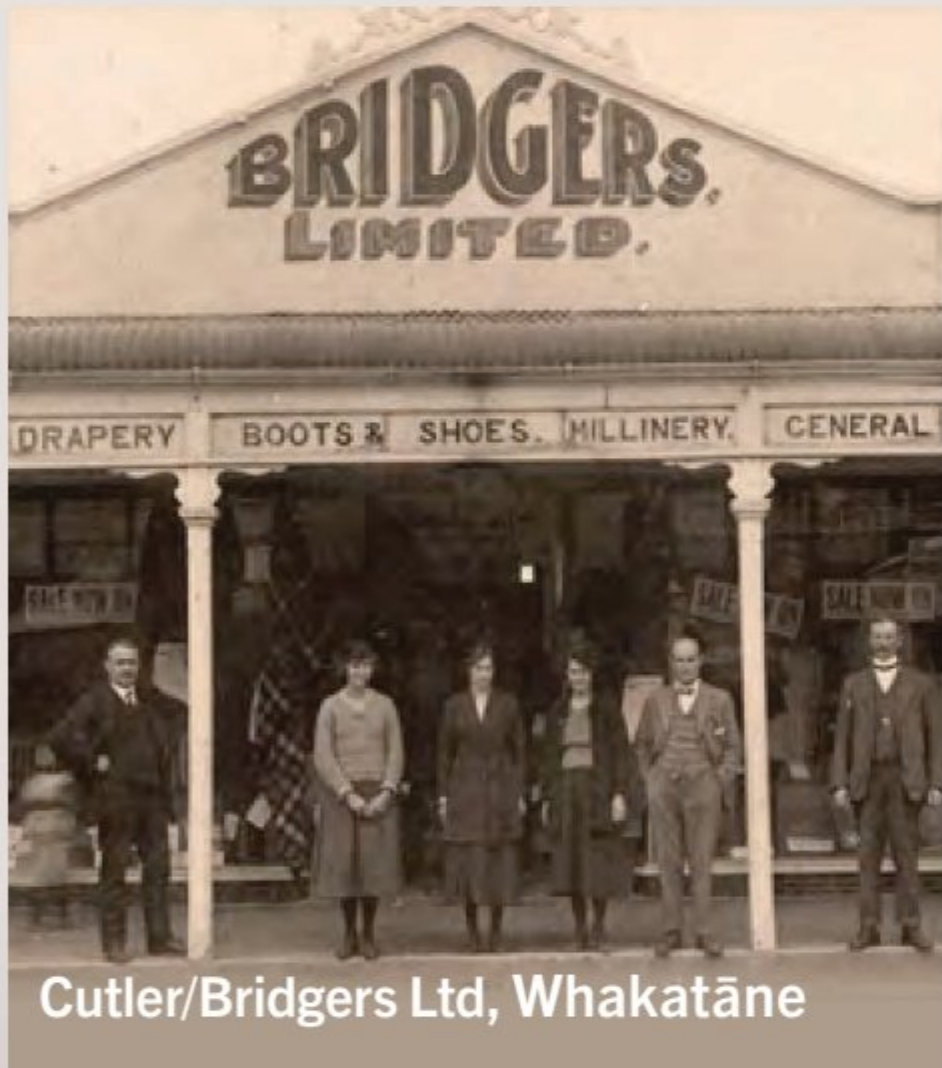
convergence of purchasing with card-based transactions alongside cash and cheques, with one ultimately overshadowing the other. This trajectory began with traditional cash registers and hand-written sales docket, which were placed on a spike and balanced at the end of each day's trading.

Cash, cheques, hire purchase with card-based payment machines, ledger books, and a greater input from accountants would all give way with the introduction of the Visa card in 1975; EFTPOS in 1984; and, more recently, digital payment services such as Apple Pay. Banks stopped issuing or accepting cheques around 2020-'21, and some retailers are now no longer accepting cash.

Each of these changes has affected retailers, but for Mitre 10, it's business as usual – adapting and embracing change yet still maintaining the personal factor. One of the major differences between

it and its large green competitor can be seen at the checkout. While Mitre 10 maintains the core service of the 'person behind the till', its competitor has opted for the self-service model. The

implications of artificial intelligence (AI) for retail have yet to be ascertained, but the satisfaction of both the customer and team member still drives Mitre 10's core values. ►



Cutler/Bridgers Ltd, Whakatāne

Other early hardware stores that joined the Mitre 10 cooperative – each going back beyond the 100-year mark

Mitre 10 MEGA Martinborough	Pain & Kershaw	Est. 1870 (approx.)
Mitre 10 MEGA Nelson	Wilkins & Field	Est. 1880 (approx.)
Mitre 10 Feilding	Darraghs	Est. 1880 (approx.)
Mitre 10 MEGA Greymouth	Griffen & Smith	Est. 1865
Mitre 10 MEGA Blenheim	Billy Carr's Hardware Store	Est. 1881 (approx.)
Mitre 10 MEGA Ashburton	WH Collins & Co., Ltd	Est. 1888
Mitre 10 MEGA Glenfield	WH Grove & Sons Ltd	Est. 1896
Mitre 10 Whakatāne	Cutler's Ironmongers	Est. 1910 (approx.)
Mitre 10 Dannevirke	Fishers Hardware	Est. 1918
Mitre 10 MEGA Tauranga	Mann Hardware Ltd	Est. 1920

Griffen & Smith,
Greymouth



Trade division

In 2011, Mitre 10 introduced a trade division, whereby it sought to partner with building professionals and associated trades.

To achieve this, it extended its supplier network, looking to source both imported and local products and materials, as well as appointing a team of trade account managers with the mandate to ‘help you get the job done’. Mindful that the building industry is constantly changing, the trade division works with the Ministry of Business, Innovation & Employment (MBIE), WorkSafe, Site Safe, BRANZ, New Zealand Certified Builders (NZCB), Registered Master Builders associations, Industry Training Association Building (ITAB) (until January 2023), BCITO, polytechs, the NZ Building Industry Federation, and the Building Officials Institute of New Zealand (BOINZ), while employing professionals from the different trades to offer good local industry knowledge, experience, and practice. The success of this division can be seen in the over-40 per cent contribution it makes to the group, maintaining its growth while in a recession.

One very interesting aspect of the trade side of the business is its partnership with Mates in Construction NZ, an industry mental health organisation aimed at reducing the suicide rate among construction professionals – suggested at being almost one person a week. For more information on this, go to mates.net.nz.

MEGA stores

The MEGA stores began in central Hastings in 2004, using the ‘big box’ model and offering a larger product range. Initial expansion was to Henderson,



Botany, and Takanini in Auckland; Hornby in Christchurch; and Tauranga.

These were the original orange and black stores, with garden centres, materials drive-through, and cafés becoming part of the Mitre 10 retail model. By 2011, the blue and yellow livery introduced in 1986 had been rebranded to orange and black. To date, there are 43 MEGA stores throughout the country, and 41 smaller format Mitre 10 stores.

And now

Mitre 10 has demonstrated the incredible resilience required not only to survive the rigours and turmoil of the past 50 years but also to diversify, expand, and compete head-on with another Australian hardware chain, drop shipping directly from China, and the decline in the spending power of the average Kiwi.

In the next issue of *The Shed*, we'll look at these topics, as well as the commitment that Mitre 10 has to its

collective roots and communities; its involvement in industry bodies and organisations, including its contribution to the training of retail professionals; and the people who maintain the momentum of this extraordinary company.

Perhaps the best way to view Mitre 10 is as a trusted, responsible, highly respected, and well-supported cornerstone of Kiwi DIY and independence, with the Kiwi endorsement of 50 years of “helping Kiwis to love where they live work and play”.

In the words of CEO Andrea Scown, “Our members are connected to their local communities; it’s where they live and work and bring up their families. Their businesses have been around a long time and they’re well practised at making decisions for the long term. It’s good for people and country. It’s healthy.” 🏠



SELLEYS®

OUR THREE STEPS FOR PROFESSIONAL PAINT PREPARATION.

- 1 Clean the surface
with Sugar Soap
- 2 Smooth the walls
with Spakfilla
- 3 Fill the gaps
with No More Gaps



IF IT'S SELLEYS IT WORKS®

selleys.co.nz

PART 1

THE PLANE-MAKERS

Soaring through the skies in your own aeroplane
is not just for multimillionaires

By Chris Hegan

Photographs: Chris Hegan and Gary Briggs





This could be you – Gary Briggs over the Hauraki Gulf

It's a tight squeeze, but Gary Briggs and I are comfortable enough in the cockpit of his tiny aeroplane. Gary built ZK-SXR in his garage, so it is not entirely without apprehension that I buckle myself in and read the mandatory warning plate advising that "This aeroplane does not require a

certificate of airworthiness". However, Gary is a professional aircraft engineer, so I settle down as he completes a flight plan and pre-flight checks, and shoves the throttle all the way in. In what seems like seconds, we are in the air, looking down on the countryside around Ardmore airfield. ►

"I buckle myself in and read the mandatory warning plate advising that 'This aeroplane does not require a certificate of airworthiness'"

Fitting the wings on Gary's Sonex for the first time



The game has changed

Setting out to do a story about Kiwis making microlight aircraft in their sheds, I pictured structures of wires, kite fabric, and motor-mower engines, only to find that those are now 20th-century relics. The game has moved on, and how.

The plane in which we are flying to Whitianga is a modern, home-built microlight. There is not much of it, but it is all aeroplane – a sleek aluminium fuselage, a proper Rotax aero engine, and controls familiar to anyone who has flown in conventional light aircraft. We city-dwellers never see them because they are prohibited from flying over built-up areas, but they are no rarity.

When I meet up with Gavin Magill at the Thames Wings and Wheels show, he walks me past rows of gleaming aeroplanes – all beautifully finished light aircraft set apart only by the fact that they are unusually small and almost all were lovingly handcrafted in sheds across the nation.



Circling Whitianga

In the sky, some lunatic is doing things with a very small yellow aeroplane that look terribly wrong, if thrilling to watch.

“That’s Dave Wilkinson in his DR-107,” Gavin tells me. “It’s a specialised high-performance aerobatic plane. He built it himself, from plans.”

And it is a microlight.

**“almost all
were lovingly
handcrafted in
sheds across
the nation”**



Dave's intrepid DR-107



Planes you can go camping with – Gary camps out at Hāwera with fellow Sonex enthusiasts

Gavin, past secretary of the Auckland chapter of the Sport Aircraft Association, clarifies the terminology: “A single-seater, or Class 1, microlight has to weigh no more than 544kg with a pilot and an hour’s fuel in it. A Class 2 is limited to 599kg, including a passenger. They also have to be able to fly at 45 knots [about 80kph] without stalling. Many of these planes would weigh much less than that.”

You don’t need a full private pilot’s licence to fly a microlight. An Advanced Microlight Certificate is easier to get but restricted: no night flying, no instrument

flying, which, I discover on the way to Whitianga, means dodging even small clouds – the minute you lose visibility, you are flying on instruments.

Gavin hooks me up with four blokes (he does not know of any women building their own plane), including the aerial acrobat. Three are engineers, two of whom work for Air New Zealand. The fourth, Chris Wade, left school on the Isle of Man at 14 to do his joinery apprenticeship and has built or helped to build a series of microlights. It may be useful to have engineering training but it is certainly not necessary. ►



Gary fitted an optical pickup and a vibration sensor to balance the engine at full power



Right wing sections for Gary's Sonex

Gary formed the wing ribs by clamping them between the wooden formers and tapping the ends over with a hammer, then creating the flutes with a modified vice grip



Building from scratch

My first call is on Gordon Lindsay, who is building a Sonex Class 2 from plans, although he has been given a head start, inheriting the plans and a selection of parts from someone who abandoned the project.

Although building from kitsets is common, this is proper building from scratch: from a huge book of plans that costs \$700. He has assembled the back end – fuselage and tail – and has now constructed the firewall. He will make everything else, either using the parts or making what he doesn't already have.

I notice the many little copper tubes sticking out of holes where parts of the skin overlap.



Gary's Sonex – getting the engine cowl to fit



Hello, little brother – one of Gordon Lindsay's many models next to the box section of his Sonex

"They're called 'skin pins', or 'clecos'," Gordon explains. "They hold parts together temporarily until they are ready to be riveted. First, we drill a 3/32th hole and put in a silver cleco. Once all the holes line up, we upsize them to 1/8th and hold those with a copper cleco. Once we're happy all the

holes are good, we pull the whole thing apart, deburr, paint, then reassemble it.

"You've got to put them in in a certain order or you won't have the space to get the rivets in. The Sonex plans are very good – they tell you how things go together." ►



It's all in the detail – clecos make sure that Gordon's spars and angle joiners fit perfectly



Gavin Magill hits the sky

The cost

Building your own plane is not cheap, but most of the boats in any marina in this country will have cost more than the average home-built aeroplane. Built from plans, your plane will come in well under six figures – but you do need time. Don't expect to be in the air in less than five years unless you have the luxury of not having to make a living.

The space

More is better, but Gordon Lindsay is building a two-seater microlight in a standard double garage. You will need hangar space towards the end, where you will put the wings on and store the plane once it is airworthy. If you live in a flat, you could rent hangar space from the outset and build it there. The club will help you with that.



Plenty of empty space over New Zealand for the microlight



Gordon's Corby Starlet under construction



Gordon flying the Corby

Parks it in the garage

This is Gordon's second plane. He showed me pictures of his first aircraft in flight and on the ground before he stretched the fabric skin on the wings, a tiny Corby Starlet. Gordon is a big man, clearing over six feet, and the Corby seems scarcely big enough to carry him.

"It fits into this double garage with the wings on; not many planes can do that," he says.

Gordon graduated to real planes from making the models strewn around the workshop and house.

"The neighbours all know about the models, so when I rolled the Corby out in front of the house, a neighbour said, 'My, that's a big model aeroplane.' When I did the engine run on it, I tied it to that big tree outside and the neighbours came out to watch. They all thought it was a model, and could scarcely believe I was going to fly in it."

The Corby is so small, with its 18-foot wingspan and 14-foot fuselage, that it has no room for the size or weight of a big battery.

"I can't have one, so I can't have a

"Gordon is a big man, clearing over six feet, and the Corby seems scarcely big enough to carry him"



Quite a spread – Gary Briggs with the completed wing spars for his Sonex



Test pilot Dave Wilkinson congratulates Gary on a successful test

“A bloke came over and asked my friend what I was doing. He said I was winding up the rubber band”

starter motor or a big generator. I have a small alternator from a Kubota tractor to produce power for the secondary ignition and the radio.”

No starter motor? Then how ...?

“You swing the propeller. I was down at Pauanui three weeks ago visiting a

friend, and I was getting ready to go.

You have to turn it 10 turns one way and then 10 the other to prime the engine.

A bloke came over and asked my friend what I was doing. He said I was winding up the rubber band.”

Starting tricks

Starting the engine while outside the plane presents an obvious danger.

“I have a rope, which I always tie to something,” Gordon explains. “Then I put chocks in the front, but I do have brakes. I use clutches out of Fisher & Paykel washing machines, but they just add a bit of drag – they’re not a proper park brake. It will roll away on concrete, or on a slight downhill, but not on grass. I find a little pebble that I put in front of the tail wheel. So, I have it tied down, chocks in place, start it up, bring it back to idle, release the rope and chocks, and hop in. The pebble is just enough to stop it getting away on me.”

Many of the planes that I see at the show have wings of fabric stretched over wood, but Gordon’s Sonex will be all aluminium.

“Aluminium is far faster,” he says. “With wood, you have to make a lot of jigs. Then you have to clamp it and line it all up, take it out, prep the wood, glue it, put it back in the jig, then walk away and let it cure. When you take it out of the jig, you have to remove the excess glue and sand it back. With aluminium, you just line it up, drill the holes, put the clecos in, and you’re done.” ►

Which plane?

A small Class 1 like the popular Corby Starlet will be cheaper to build and the regulatory hurdles are lower, but you will always be on your own up there. Still, flying in groups is a lot of fun.

Kitset or plans? A kitset is obviously a surer thing. You could get one in the air this side of \$100K, but building from plans costs significantly less and probably yields a greater sense of achievement. It depends on your pocket and your confidence in your making skills. In a club, you’re not on your own so don’t be daunted.

As Gordon says, “If you ever get stuck, there is always someone that will give you advice or come and help.”

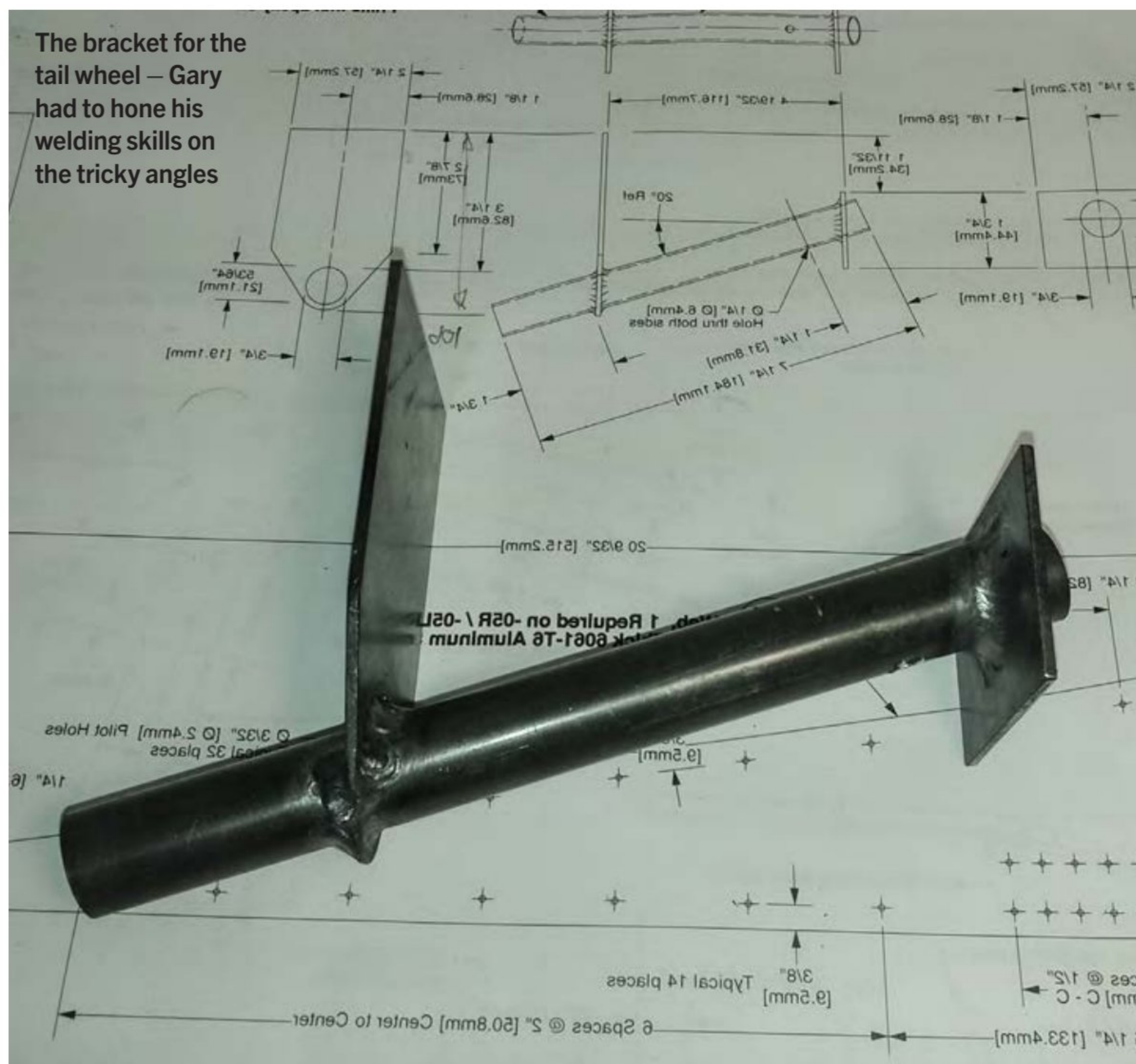


The popular Corby Starlet

Rear box section of the fuselage early on in Gary's Sonex build



The bracket for the tail wheel – Gary had to hone his welding skills on the tricky angles



Good things take time

Building your own aeroplane is not for the impatient. Gordon expects the Sonex to be ready in something between three and five years. The Starlet, a much smaller plane, took longer, much longer.

“What happened?”

“Life happened. Moved house three times. Got married. Had two kids.”

“How long did it take you?”

“I hate to say.”

“Come on.”

“Thirty years – but I built everything, even the motor. Got a VW 1800 long block, bored it out to 1835. I put a second set of plugs in the heads for dual ignition, for safety. You don’t actually have to have that for a single-seater but I did it anyway. I modified the crank, modified this, modified that, but it’s still a very simple engine – no fuel pump, for instance. I’m using a Mikuni carburettor out of a jet ski. It has a pulse pump in it, so it’s got positive pressure without a pump,” he says.



Gary's nifty method for bending the aluminium sheeting for the wings' leading edges – step one



Leading-edge skin bending – step two



Leading-edge skin bending – step three

You can over-power

"I hope to drive this with a ULPower 350. That's 118 horsepower [hp]. A lot of these planes have 80hp engines but I don't think that's enough for two people. But you can over-power a plane. You end up with too much weight in the front, so you have to put weight in the back, limiting baggage, and there's no point, because you can't go faster than the aircraft's rated top speed." ►



The regulations

Again, your club will help you through the light-handed (relative to other jurisdictions) requirements. Different standards apply to single-seaters; twin-seaters; and the other home-build class – experimental amateur-built – which doesn't have the same weight restrictions, but if your plane is too heavy to qualify as a microlight (such as the amphibious Taylor Coot), it requires a full certificate of airworthiness and a standard private pilot's licence to fly.

The takeaway

If you're a keen DIYer with time and a healthy but not ruinous budget, you can build and fly your own aeroplane. The skies are calling!



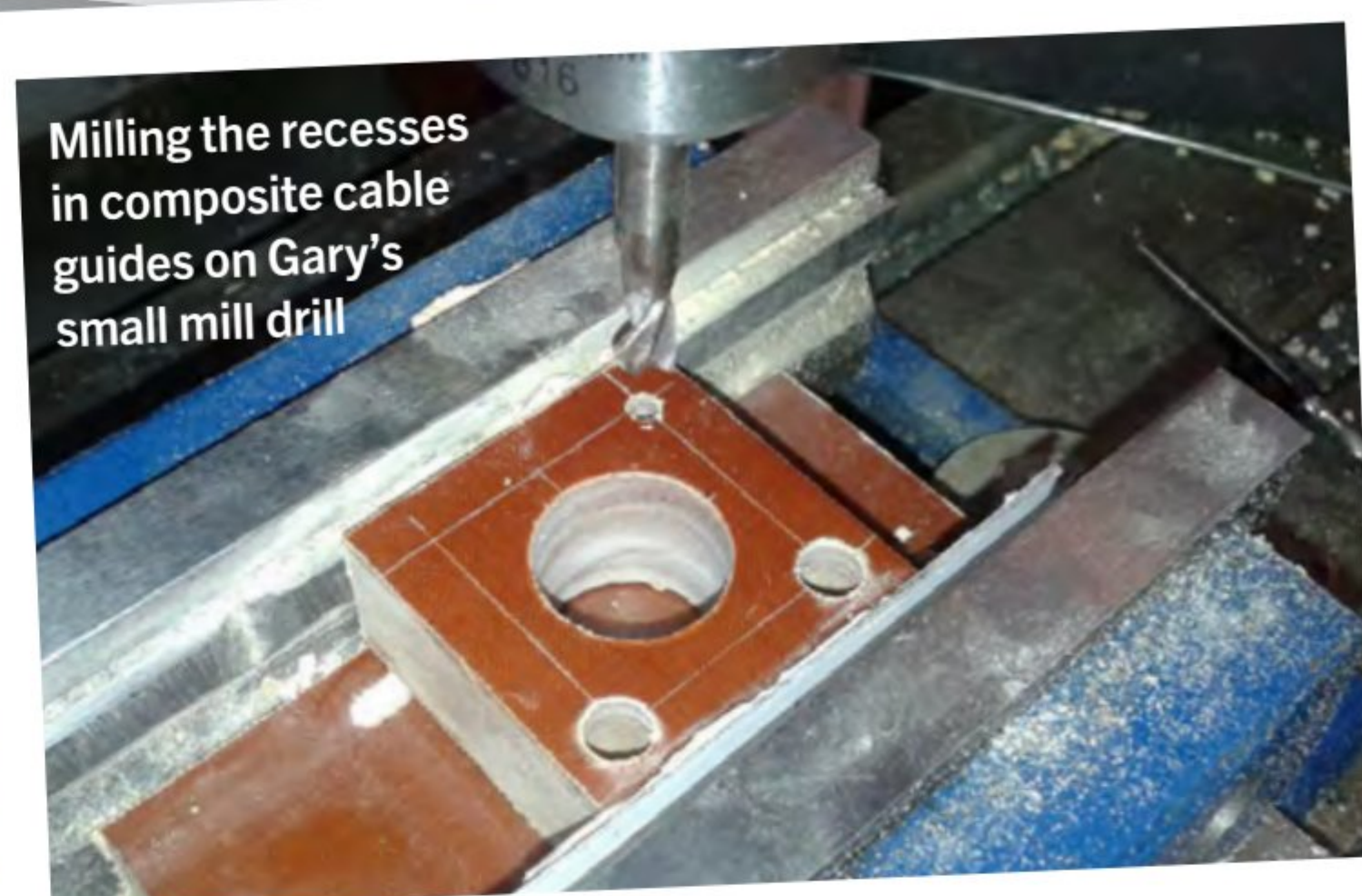
The Coot will fly again. In the next issue of *The Shed*, we look at Dave Wilkinson's resurrection of a 1960s New Zealand-built flying boat



Gordon fits a cleco



Clever clecos in place



Milling the recesses in composite cable guides on Gary's small mill drill



Gordon works his way through his thick stack of plans

“I ask Gordon what has happened to the traditional fabric hang-glider with a motorbike engine”

Gordon is an Air New Zealand aircraft engineer, so building planes is what he does every day. The hardest part for him is sourcing the parts: “Finding them and getting them into the country has become much worse since Covid. The price of freight has tripled. That box of spar caps there took seven months to get here, and that was air freight. I could have put them in a container and got them quicker.”

I ask Gordon what has happened to the traditional fabric hang-glider with a motorbike engine. Those that remain

are mostly on farms, flying around the paddock. Why?

“Up there in the weather with tubes and rags ...” Gordon pulls a face that says it all.

“Microlights used to be a poor man’s aircraft, but these kitsets are getting very expensive now they’re coming out with composite bodies; things that can fly at 200 knots. This Sonex is a simple one to build, but it can still pull six Gs positive and three Gs minus. That’s a lot for most pilots. It’s enough to do most aerobatics. You can do a loop.”



Running the engine in Gary's driveway to check systems and temperatures

“There are also a lot of important pieces of equipment, such as metal folders, that various members have and are usually willing to make available”

Bending brackets on Gary's bender, homemade from three-inch steel angle

So you want to build a plane?

What advice would Gordon give to someone setting out to build their first plane?

“Join the club. It's cheap – the Auckland chapter's only \$20 a year, so why wouldn't you? You get so much help – lots of people who know composite; people who know wood, aluminium, instruments, all sorts of things.”

There are also a lot of important pieces of equipment, such as metal folders, that various members have and are usually willing to make available. When you finally have your plane, the club is where all the fun happens. ►



The Cri-Cri – test pilot Wilkinson shows complete confidence in French microlight design

It has to be the timing – club members Gavin Magill and Mike Penny help Bruce Turner sort out an engine issue in his Sonex Waix





Seven years, 4130 parts — Gary has a plane!



Penny and her team

“In Whangārei, there’s a lady who makes ‘Penny-burgers’. Her name’s Penny, and every Sunday she makes burgers in the hangar”

“They’re a lot of fun, especially on a beautiful sunny day,” Gordon says. “You go out there and there’s four or five guys and we’ll all go somewhere together. In Whangārei, there’s a lady who makes ‘Penny-burgers’. Her name’s Penny, and every Sunday she makes burgers in the hangar. Dargaville has a roast in the clubroom every Saturday for lunch.

“The only limitation is that you’re not supposed to fly over built-up areas. Most airports are in controlled airspace, but as long as you have a transponder and the right equipment, you can fly a microlight into those.” 📦

Flying Flea

Henri Mignet (designer). 1936. Aircraft (Mignet HM-14 ‘Pou de Ciel’ [‘Flying Flea’] ZM-AAA), 1965. On exhibit at the Museum of Transport and Technology (MOTAT), Auckland

Three of these were built in New Zealand in the 1930s. The steep pitch of the wings created insufficient lift and led to the plane’s inability to pull out of a dive of more than 15 degrees, resulting in fatalities, one in New Zealand.

Shortly afterwards, the aircraft was banned worldwide.



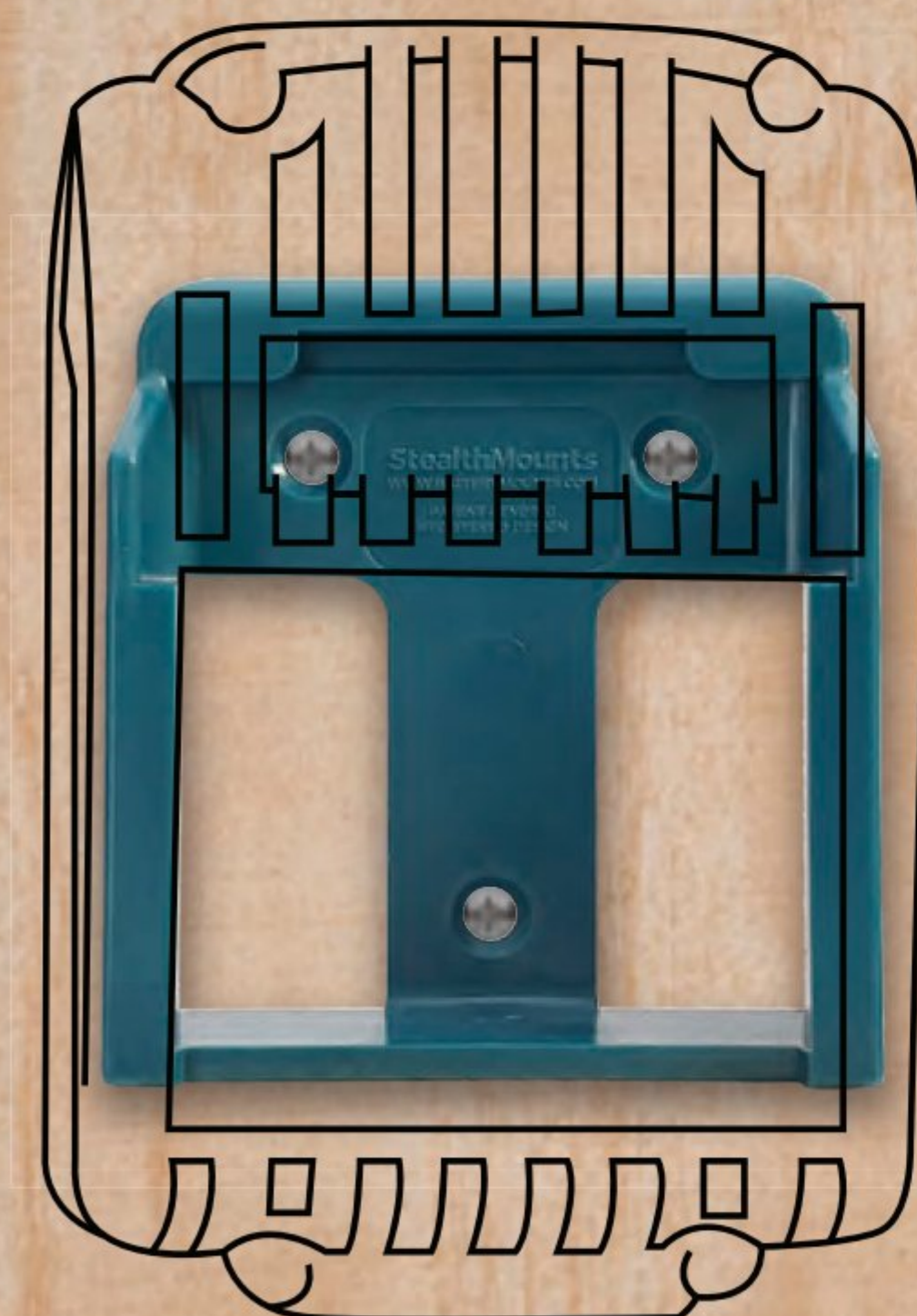
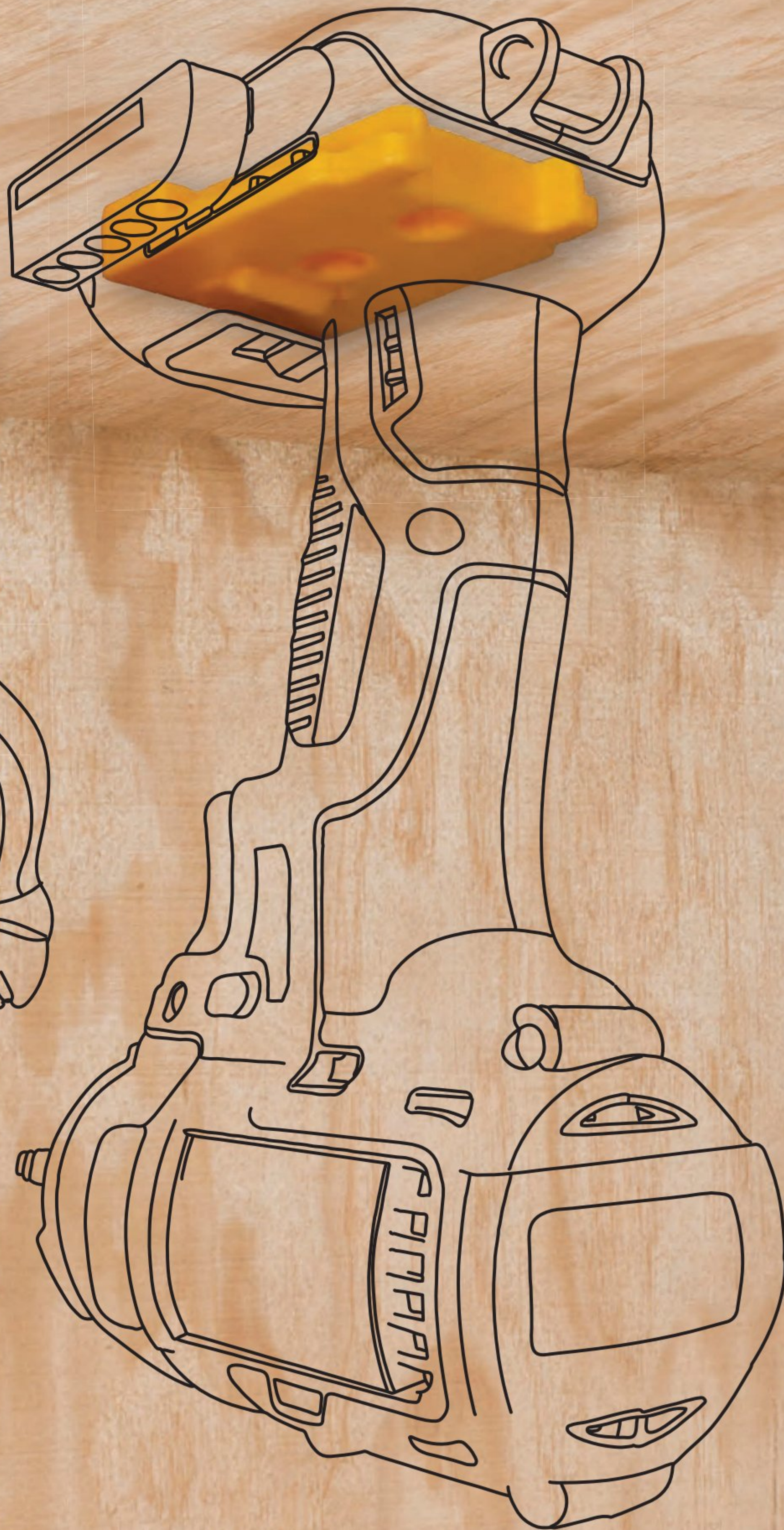
StealthMounts®

CHECK OUT
OUR INSTA



YOUR STORAGE SOLUTIONS

THE LEADING CORDLESS TOOL
& BATTERY STORAGE SOLUTIONS



STEALTHMOUNTS AVAILABLE FOR:

DEWALT

BOSCH

HiKOKI

Makita

Milwaukee

ToolWare

09 579 8080 | info@toolware.co.nz | Stockists: [toolware.co.nz/stockists](https://www.toolware.co.nz/stockists)



Below: This last instalment is dedicated to the Arduino Uno R4 and chess; the image shows the level converter needed to connect the Arduino Uno R4 (5Vcc) to the ESP32-S3 (3.3Vcc)

This was the most challenging part that Luis had to work on: discovering an interesting issue that did not depend on our design

**PART 3**

INTRODUCTION TO ARDUINO UNO R4 PLAYING CHESS

Our programmers would welcome volunteers to help test their application

By Enrico Miglino and Luis Garcia



Left: The iOS chess interface, specifically created to work in conjunction with the chess program on the Arduino Uno R4, has reached beta version 1.0.8 and will be ready and available soon. The application is still under development but is already available to beta testers. We are looking for volunteers who can do this on their devices (iPhone 14 or higher versions)

“I recall the architecture of game systems and arcade boards from the ’80s and ’90s, which operated multiple processors coexisting on the same board”

In this third instalment, we complete the notes on the application testing that we developed to verify the performance of the Arduino Uno R4, including the extra boost provided by the use of the ESP32-S3.

As already discussed in the previous articles, there is a Minima version of the Arduino Uno R4 that does not include the ESP32-S3 (a powerful ARM microcontroller); we avoided this limitation by adding an external ESP32-S3 device, facing a challenging issue on the power lines.

Arduino Uno R4 multicore

I recall the architecture of game systems and arcade boards from the ’80s and ’90s, which operated multiple processors coexisting on the same board. Each was dedicated to a specialised task, so the board handled well-defined and independent tasks in parallel. It was a meaningful technological advance before the contemporary multicore age, but the architectural idea is still valid. And that is what we tried.

The first – and easiest – way to exchange data between the Arduino Uno R4 Minima (the version without

the ESP32 and Wi-Fi support) and an external ESP32-S3 has been using the universal asynchronous receiver/transmitter (UART).

Everything went fine, but unfortunately it was useless. In fact, we needed the UART communication to configure the board for the Wi-Fi access point, WPA password, and dynamic IP address assigned by the router via serial terminal.

The I2C protocol

For this reason, using the I2C protocol represented a strategic choice in the inter-processor communication architecture.

The inter-integrated circuit – I2C, or IIC – is an extremely simple yet efficient way to share information between two boards, different systems on a chip (SOCs) on the same board, board and sensors, etc. It’s a lightweight, high-speed protocol that requires minimal wiring.

It’s not much different from the way that the Arduino Uno R4 Wi-Fi board multiple SoCs accomplish this very same job. The main challenge to overcome was the different transistor–transistor logic (TTL) voltage translation, in a way that proved to be stable and reliable. ►

Telnet Chess

Play

Games

Setup

Help

About

THE WHERE DREAMS ARE MADE REAL
Shed
element14

Above: The horizontal view of the application reveals the graphical idea shown in the cover image of these three articles. Using artificial intelligence (AI) images does not limit creativity if AI is considered one of the many tools that technology makes available to shape ideas. The only limit is one's imagination

“Everything went fine, but unfortunately it was useless”

In a high-level concept, the I2C protocol is a bus whereby we can connect up to 127 slave devices to a master one. On any slave device, it is possible to perform both input and output data transfers. In our particular set-up, the ESP32-S3 board, which exposes a web server to which a terminal or the iOS application can connect, is the master, and the Arduino Minima is the slave.

Several communication issues

In its early stages of development, to prototype and test the system's viability quickly, we used breadboards and jumper cables instead of a custom

printed circuit board (PCB) or a prototype board with soldered cables.

With this initial configuration, we faced several communication issues, especially at higher communication speed. Using shorter cables and a lower transfer speed partially solved the problem. However, when using a soldered prototyping board, we still met unstable performances in communication. The reason is that not all the voltage level adapters work the same. We had to try several brands (using different integrated circuit [ICs]) until we found a good and cheap device that granted the required reliability and performance; it is available on Amazon for a few dollars (Teyleten Robot 4 Channels Logic Level Converter Bi-Directional Module Shifter I2C IIC 3.3V–5V).

Communication software

The code displayed shows how it is almost easy to set up the communication software, thanks to the libraries provided by the Arduino integrated development electronics (IDE).

To connect a board as a slave to the I2C bus, we need to define the address that the I2C master device will use to communicate with this board and define two functions: one that will be called when data is available from the master and another one that will be called if the master is requesting data.

```
#include <Wire.h>

#define SLAVE_ADDRESS
0x20

void setup() {

  Wire.begin(SLAVE_
ADDRESS); // Initialize as an
I2C slave with the defined
address

  Wire.
onReceive(receiveEvent); //
Register an event handler for
when data is received

  Wire.
onRequest(requestEvent); //
Register an event handler for
when data is requested by a
master

  Serial.begin(9600);

  // ... //
}
```


It is important to note that, when set as master, the ESP32-S3 boards do not connect to the I2C bus unless the used pins are not explicitly declared, even if they are the I2C pins hardware assigned, marked on the PCB. Discovering this detail has been time-consuming and teaches us a valuable lesson: thoroughly, thoroughly, test, test, and test again before assuming something should work.

```
#include <Wire.h>

#define SDA_PIN 17

#define SCL_PIN 18

void setup() {

  // ... //

  Wire.begin(SDA_PIN,
SCL_PIN); // Pins have
to be specified on most
boards

  // ... //

}
```

Right: The app can connect to the Arduino chess device via Wi-Fi, making moves easy on the touch screen. All the ‘intelligence’ is managed remotely by a microcontroller that also validates the user’s moves

I2C task distribution

While the Arduino Uno R4 Minima is almost exclusively dedicated to running the chess engine, the ESP32-S3 board – a SOC especially suited for internet of things (IoT) tasks – is focused on network scanning, storing credentials, and running a web server.

The ESP32-S3 searches for stored network credentials at system boot and tries to connect to that network. If no saved credentials are found or the login is unsuccessful, it scans for available Wi-Fi networks and presents a user interface for connection using serial communication.

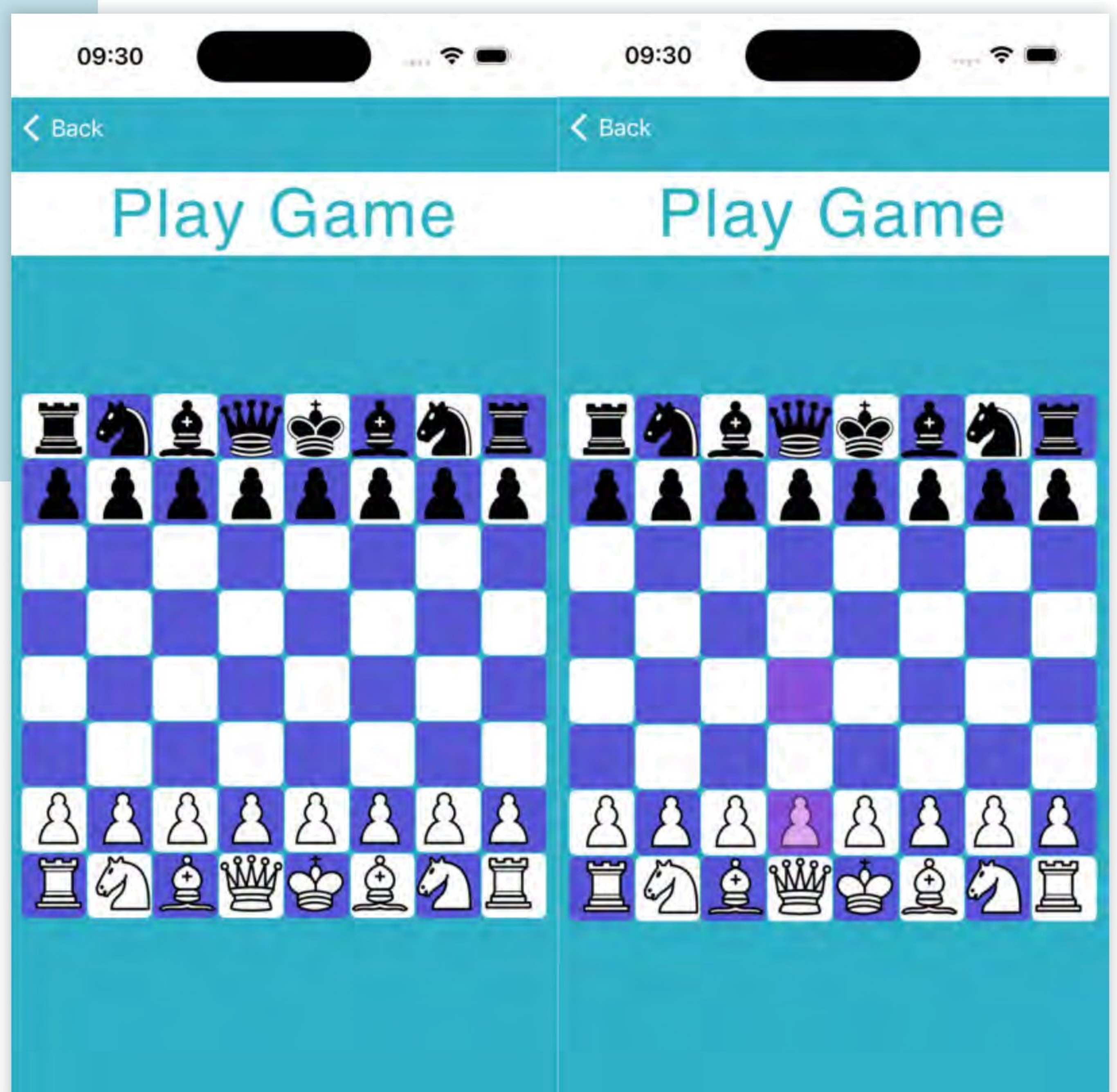
Of course, if the user knows that they are using an unknown Wi-Fi access

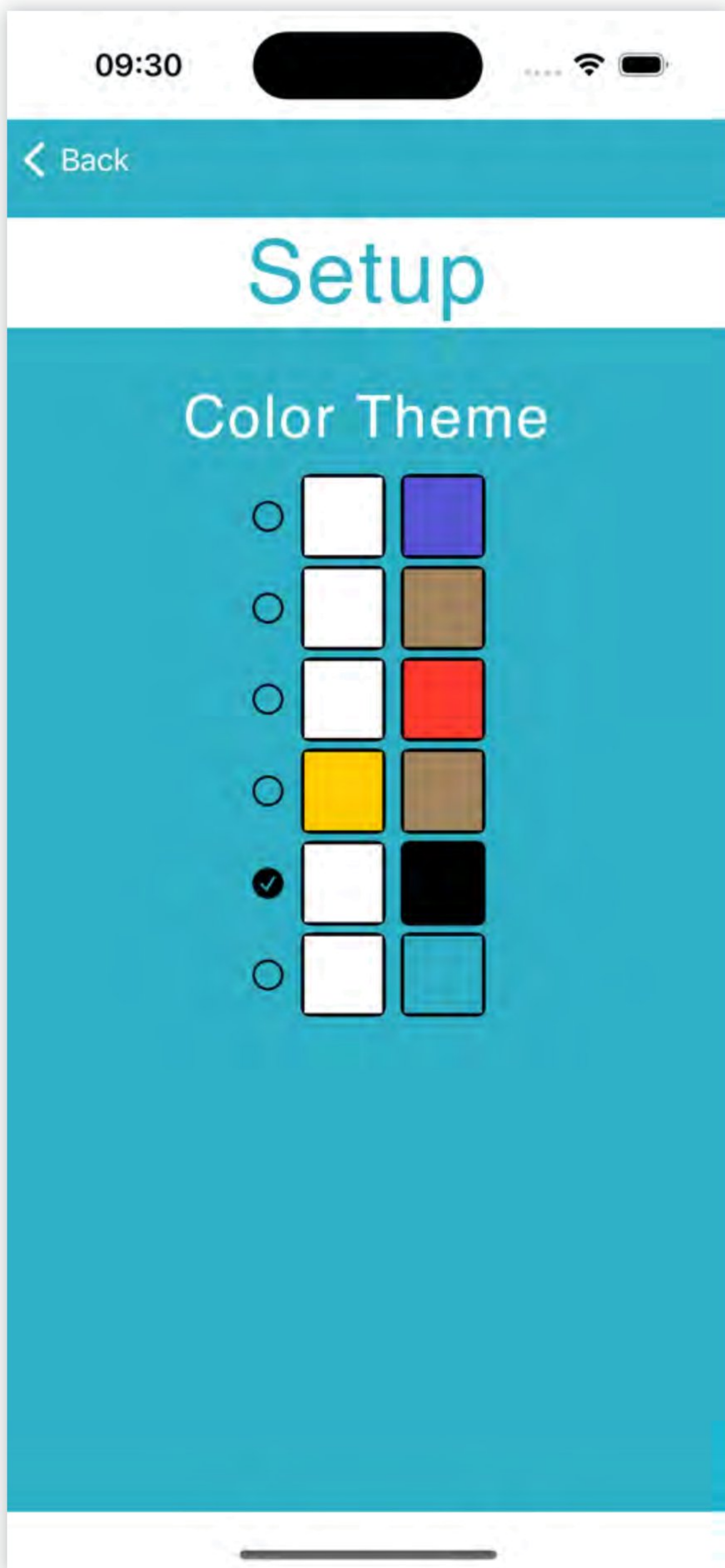
point, they should be connected to the board with a USB serial connection and a PC to provide the required settings.

Once the connection is successful, we get a URL with the IP address assigned to the ESP32-S3 through the Serial Monitor, and the board starts up a web server. We can then connect to the web server to the provided IP address. The board gets user input through the HTTP server, relays it to the Arduino Minima board, and processes the response.

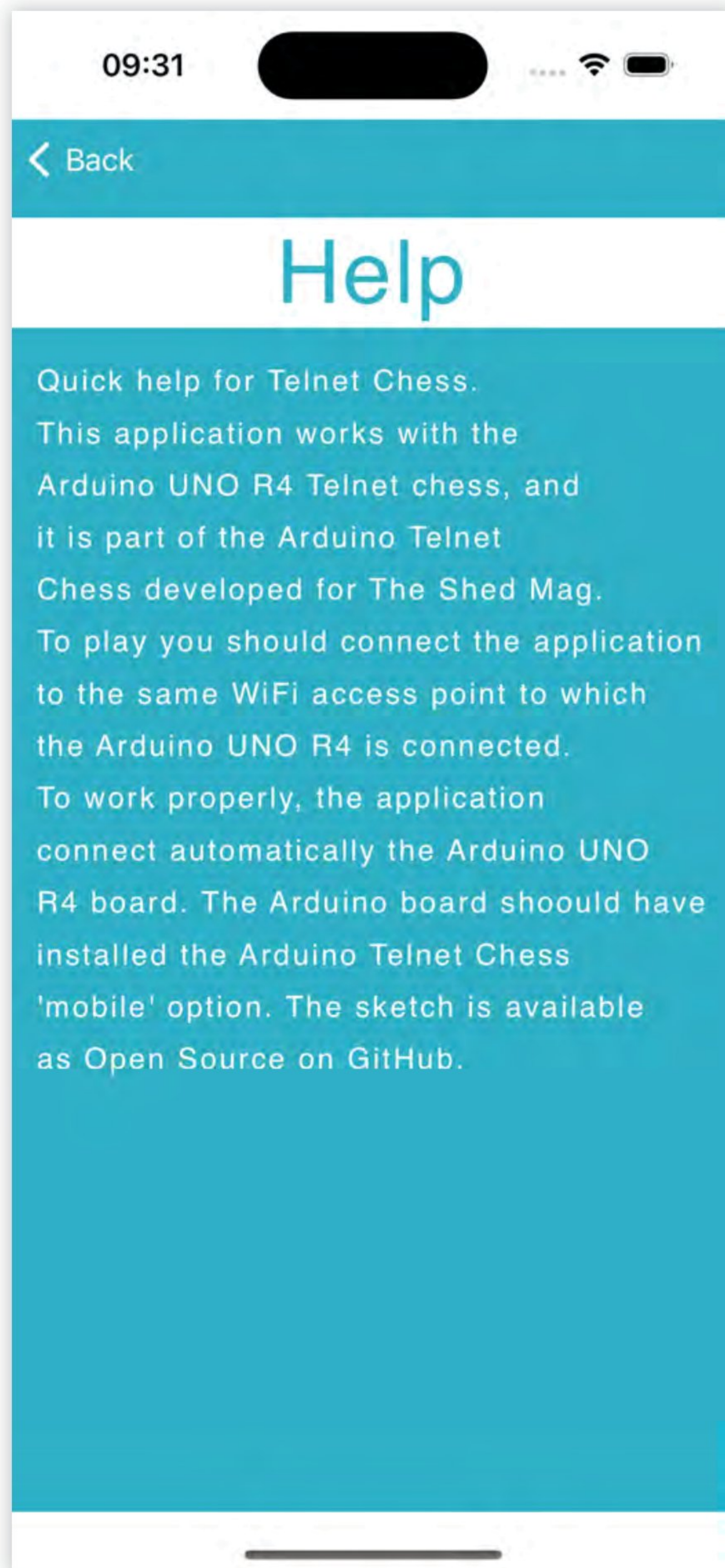
So, the ESP32-S3 board plays more or less the role of a dumb terminal that offloads a computationally expensive task to another server. ►

“On any slave device, it is possible to perform both input and output data transfers”





Above: The application includes some utility menus, including a set-up in which it is possible to choose the chessboard colours and set up the Wi-Fi connection parameters for the Arduino-ESP32 board



Above: The application's use is intuitive, assuming that the user knows the chess-playing roles. A quick guide is accessible from the Help menu

“The open-source project of the software mentioned in these three articles is available on GitHub”

Images

The images shown in this article illustrate the state-of-the-art iOS application that will be used to provide a comfortable chess interface to the user. It will provide the settings to connect to the Arduino chessboard via the web server to play against the board.

The application is still in beta development, but it is already available

for testing; we invite all interested readers to contact us by email (editor@the-shed.nz) to receive the information to install the version (and the next updates) for testing on their iPhone devices.

The open-source project of the software mentioned in these three articles is available on GitHub: <https://github.com/alicemirror/Arduino-Telnet-Chess-iOS>. 📄

TORMEK®

T-8 Original

A powerful and versatile water-cooled sharpening system, producing durable edges for all types of craftsmanship.

Includes everything you need to get started:

- SG250 Original Grindstone
- LA220 Leather Honing Wheel
- T800 Storage Tray
- SE77 Square Edge Jig
- TT50 Truing Tool
- SP650 Stone Grader
- WM200 AngleMaster
- PA70 Honing Compound
- US105 Universal Support for precision
- EM15 Edge Marker
- HB10 Tormek Handbook



Machines that mean business
0800 522 577 | www.jacks.co.nz



ezi swap gas

Industrial Gases

Don't pay cylinder rental fees again...ever!

Join New Zealand's only 100% kiwi owned, nationwide industrial gas swap system by purchasing an Eziswap Gas cylinder and stop paying cylinder rental fees.

Go to the Eziswap Gas website and find out more now.

afterpay

Shop now. Pay later with Afterpay.

0800 394 7927

eziswapgas.co.nz



100% New Zealand owned and operated



Only just clearing

ZEALANDIA SYSTEMS

New router offers features not previously seen on the New Zealand market

By Mark Beckett

Photographs: Mark Beckett

Readers may recall that I investigated and purchased a CNC router (*The Shed*, Issue No. 80, September/October 2018). It's been very useful, and I still use it. However, I've started exceeding its capabilities, meaning that some projects have been abandoned.

While I thought 75mm Z-axis was enough, it's the 118mm clearance that I've struggled with. Once you add a work-holding jig, you have even less room.

I designed a method of improving the bed holding and rigidity, and gaining 5–6mm, but it was still not enough, so I looked at other options. Thankfully, Zealandia Systems has introduced a new model that suits my needs.

Several years in the making

The Discovery Gantry Router (Discovery GR) has been several years in the pipeline and offers features and capabilities not previously seen on the New Zealand market.

The routers come in sizes from 300x300mm to 1200x1200mm and have 200mm of Z-travel, but, with the separate base fixture, the clearance over the work surface can be increased as required.

This flexibility means you can work on something much larger than the cutting area. For example, I tend to buy 1200x600 sheets and then machine what I need from one end, but holding them has been a compromise. So, by using a 1300-long bed, and adding fixing past the machine footprint, I can solve that problem.

“Zealandia Systems has introduced a new model that suits my needs”

Affordable unit

The Discovery series is aimed at customers who are unsure whether CNC operations can add value to their business, without them having to spend large amounts of capital – or, in my case, take a step up without invoking the wrath of Mrs Finance.

My other limitation has been machining metal. While my old M1 will cut aluminium, I have a project that needs either a plasma (and lots of clean-up) or a router, so now I can cut those metal brackets.

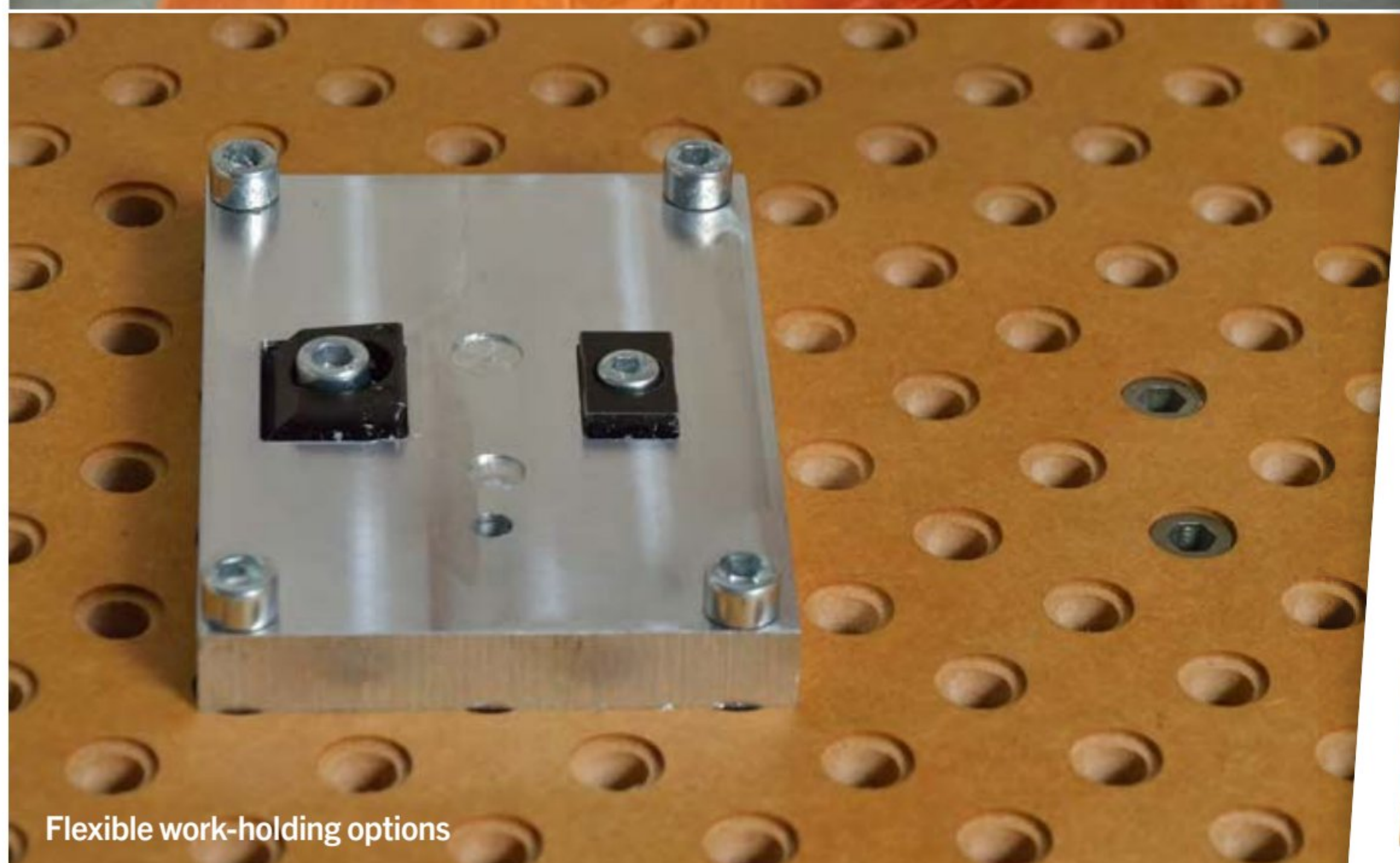
It's very easy to jump on the internet and order things, but, as many New Zealanders will know, support when something goes wrong can cause delays and incur costs. Companies tend to drop support when the next model is out, so, for a small business or hobbyist, buying locally designed and manufactured means that support is only a phone call away, reducing the downtime to a minimum.

I highly recommend checking out Zealandia Systems' website to see how you could benefit from adding a Discovery GR to your workspace: <https://zealandia.systems/>. 📄

“But, as many New Zealanders will know, support when something goes wrong can cause delays and incur costs”



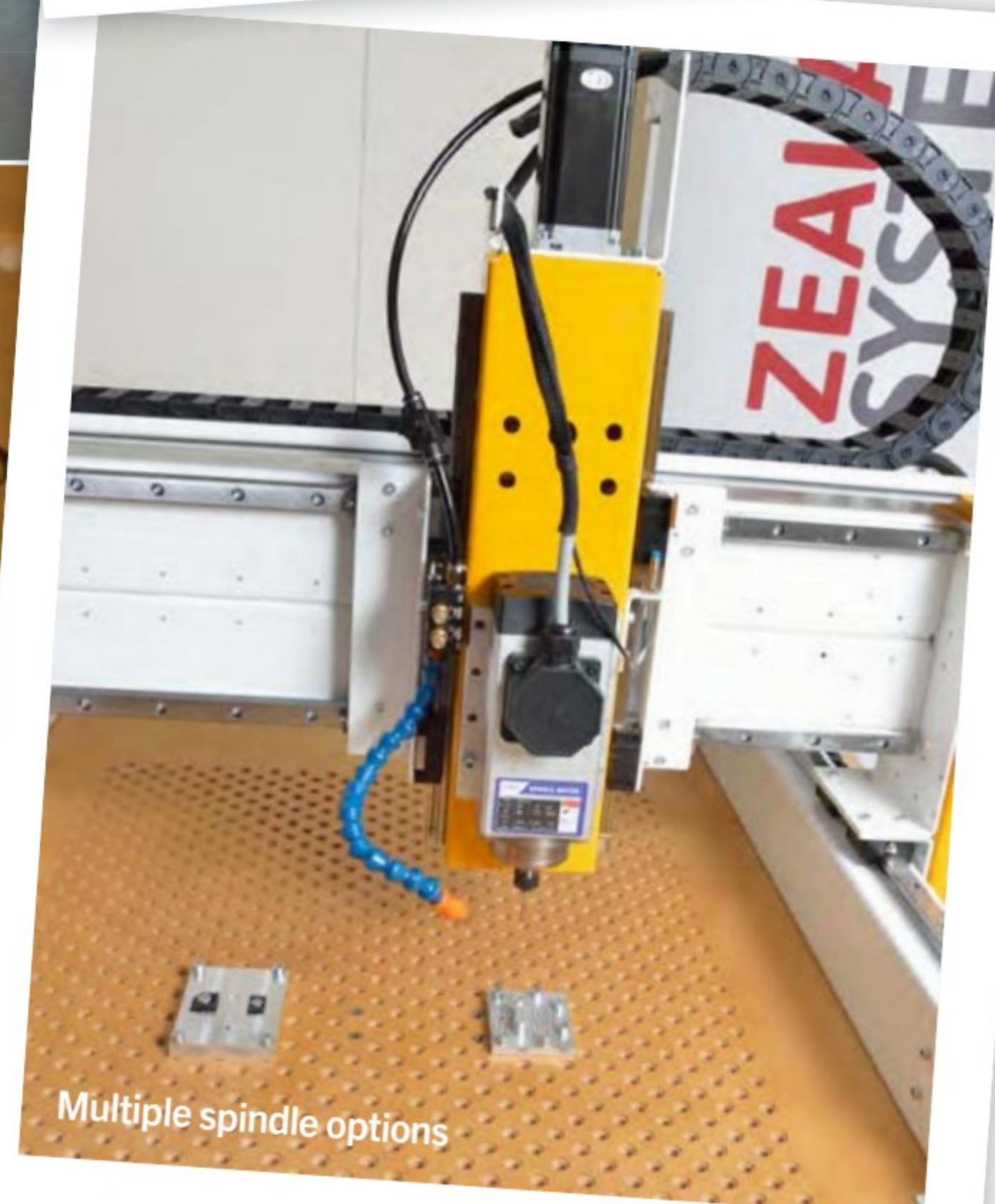
Wish I had more height for other options



Flexible work-holding options



Low-profile fixture



Multiple spindle options

A LITTLE BIT OF THIS, A LITTLE BIT OF THAT ...

Sailing the summer away may be bliss, but the day of reckoning eventually arrives

By Murray Grimwood

Photographs: Murray Grimwood

Off-grid living consists of a never-ending list of to-dos, which in turn get prioritised by urgency – or sometimes by the looks she gives me!

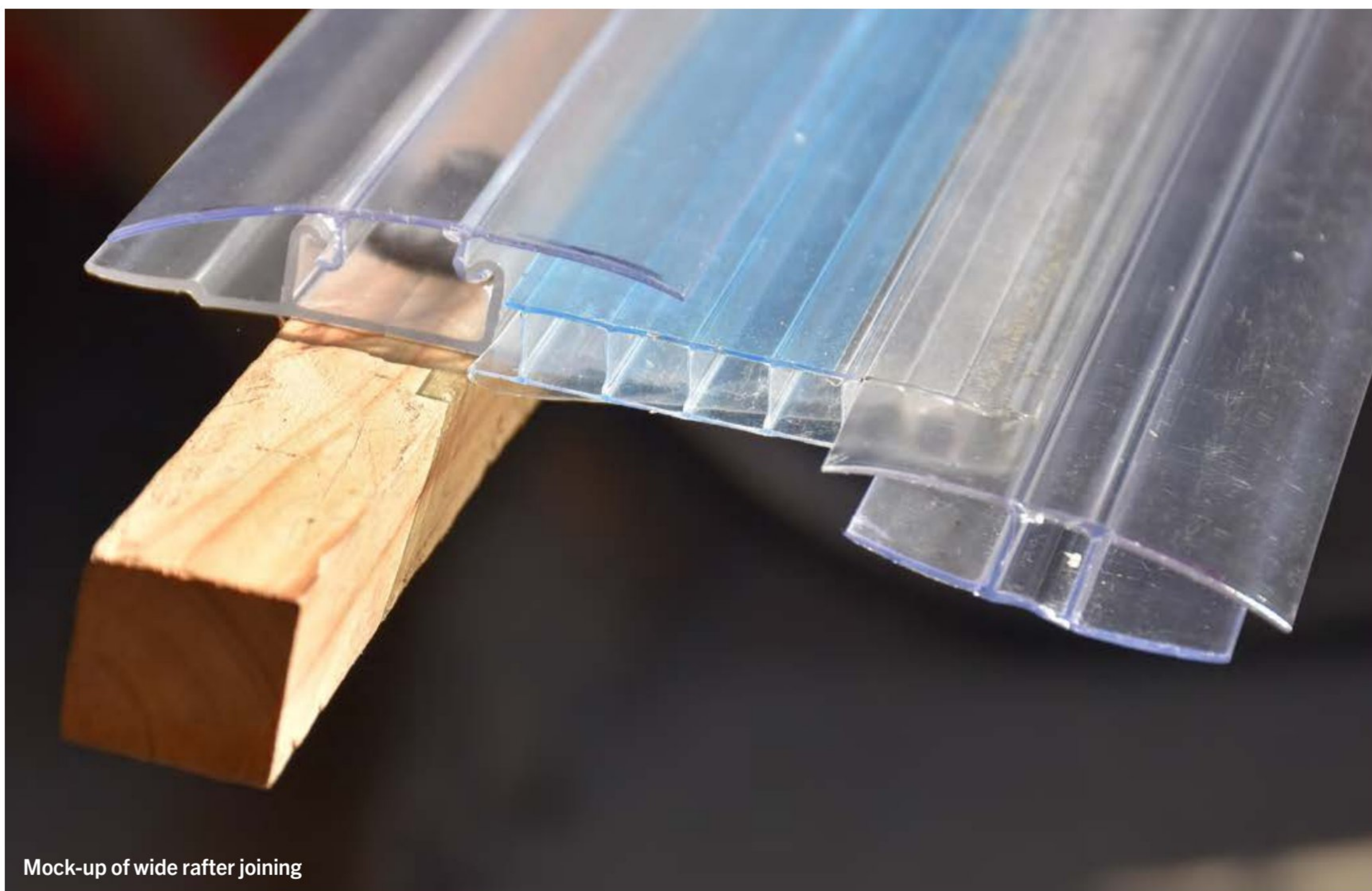
Over summer, I'd been avoiding the list to concentrate on sailing, so there was a bit of a backlog. That wasn't helped by my back 'going out' in response to tackling the list – a recurring problem; the wings of my L5 vertebra never formed properly. So here I sit at the computer, dosed with anti-inflammatories, to record progress thus far.

New, smarter batteries

First on our list was installing our four newly bought 100Ah LiFePo₄ batteries. We'd run second-hand lead-acid units forever; mostly gel, all deep-cycle, but it was time to try this longer lived, more forgiving storage format. Their ability to discharge down to 20 per cent; their ability to only lose three per cent charge if left unattended for a year; their ability to handle hundreds (if not thousands) more charge cycles; their ability to dwell at any discharge level – all these swayed our purchase. The downside – potential fire – we already had somewhat covered

due to their location in an external metal cupboard.

I read the blurb, as you do, about them having onboard battery management systems (BMSs), then promptly forgot – as you do. Went outside next morning to check on our new ostensibly 12V toys – and they're reading 23V across the terminals. Panic! Disconnect everything, fast. Re-test; 13.4V each, cold to the touch; what's going on? Finally worked out that the 23V was just potential; that the BMSs had kicked in when our Pelton-wheel feed had surpassed their fully charged capacity, sometime during



Mock-up of wide rafter joining

the night. If I hadn't been too stressed to listen to it, the Pelton wheel would have told me, singing away at its unloaded speed. Clearly, lead-acids are more forgiving of being overcharged, and, clearly, we'd been relying on the Pelton automatically adjusting to demand-unload. It has been switched off since, while we work out how to feed it in alongside our 300W of solar photovoltaics (PV), currently doing the job alone.

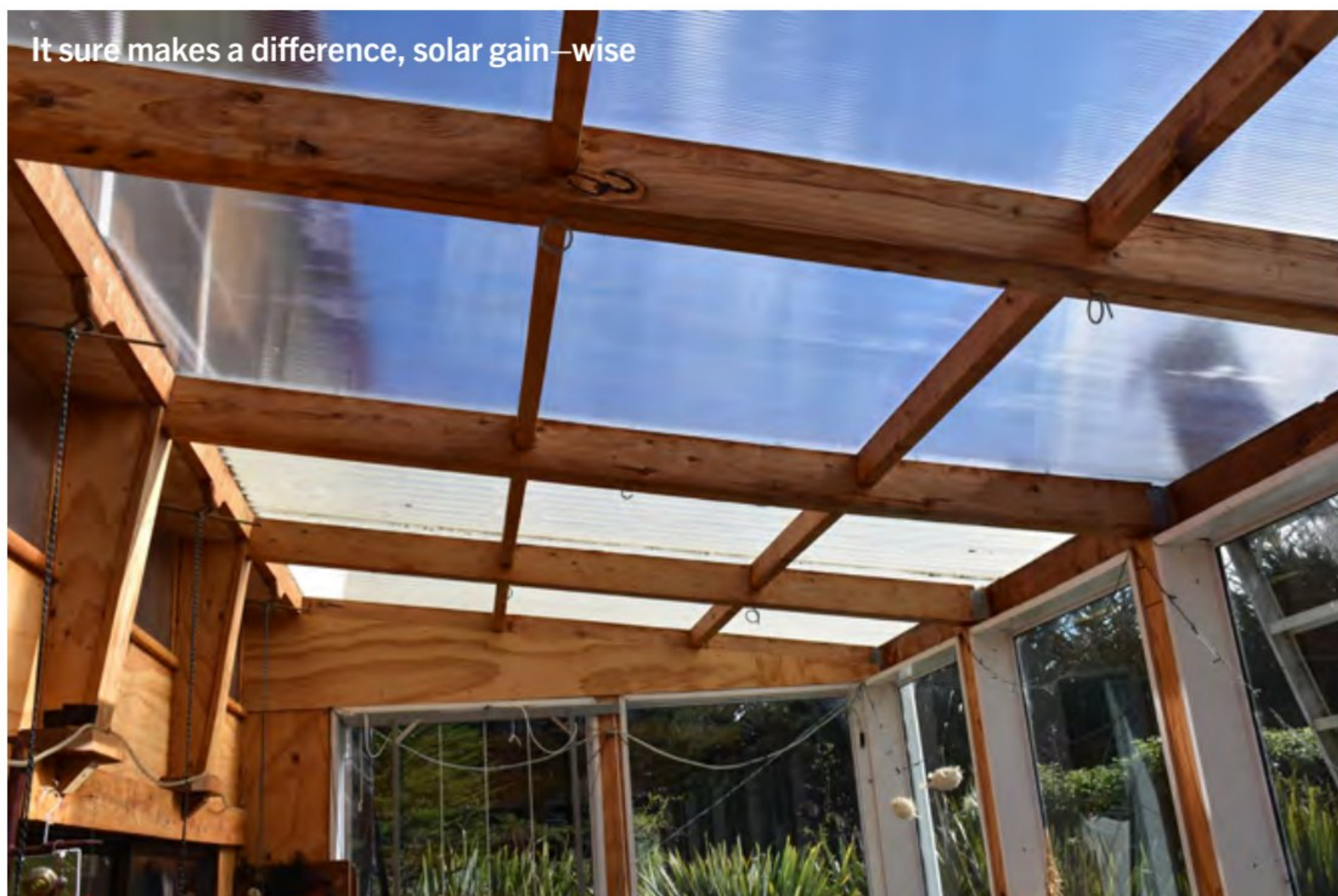
Letting the sunshine in

The next item worth reporting here (there are many mundane tasks that

aren't) was replacing the polycarbonate roof on our conservatory – with polycarbonate.

The old format was corrugated poly, laid over tunnel house plastic (doing the job of building paper, as a condensation catcher). To keep that plastic from sagging, we'd stretched 90-pound nylon fishing line at 50mm spacings. Not only was the 'new in 2008' corry going yellow, but the plastic underneath it was seriously disintegrating and the fishing line was becoming breakable by hand – so much for the permanency of tunnel houses and the longevity of nylon line!

“To keep that plastic from sagging, we'd stretched 90-pound nylon fishing line at 50mm spacings”



It sure makes a difference, solar gain-wise

Glass would have been ideal, double-glazing even better, but the shallow pitch and the fact that I get up there periodically – to indulge in window and spouting cleaning – ruled it out. Insulation was something we were keen to improve, so we chose to try the 8mm version of polycarbonate Twinwall (the stuff that looks like clear corrugated cardboard). Sure, it's derived from fossil fuel; sure, it's not permanent; sure, a lot of folk disparage it – but we made the call. The stuff duly arrived, got stacked, and a year passed. I didn't see her looking the look, but I'm fairly sure she more than once thought the thought ... ►



Will the choice of Twinwall be the right call? Only time will tell

“The extra warmth is tangible and the brightness amazing; whether this was a correct long-term call, only time will tell”

A complicating issue was our 1300mm rafter spacing, designed around the second-hand windows with which we’d built the conservatory (originally, they were the Ansett enclosure at Dunedin’s airport).

The Twinwall sheets are 1220mm wide, so two joiners and a thin spacer were required at every rafter. Easy to say, but a tad frustrating to execute. I can report that the extra warmth is tangible and the brightness amazing; whether this was a correct long-term call, only time will tell.

Dirty work

My partner occasionally teaches earth-building skills to youngsters; the requirement is for sifted clay and soil. We have used one of those traditional circular wood-framed sieves, but the mesh has become rotten, the wood is borer-ridden and splitting – and any we see coming up at the auctions are in similar disrepair. Nobody makes an equivalent, although a smaller pressed-metal one with a fairly coarse mesh is occasionally sold. I decided to build one; how hard could it be?

I found a source of stainless

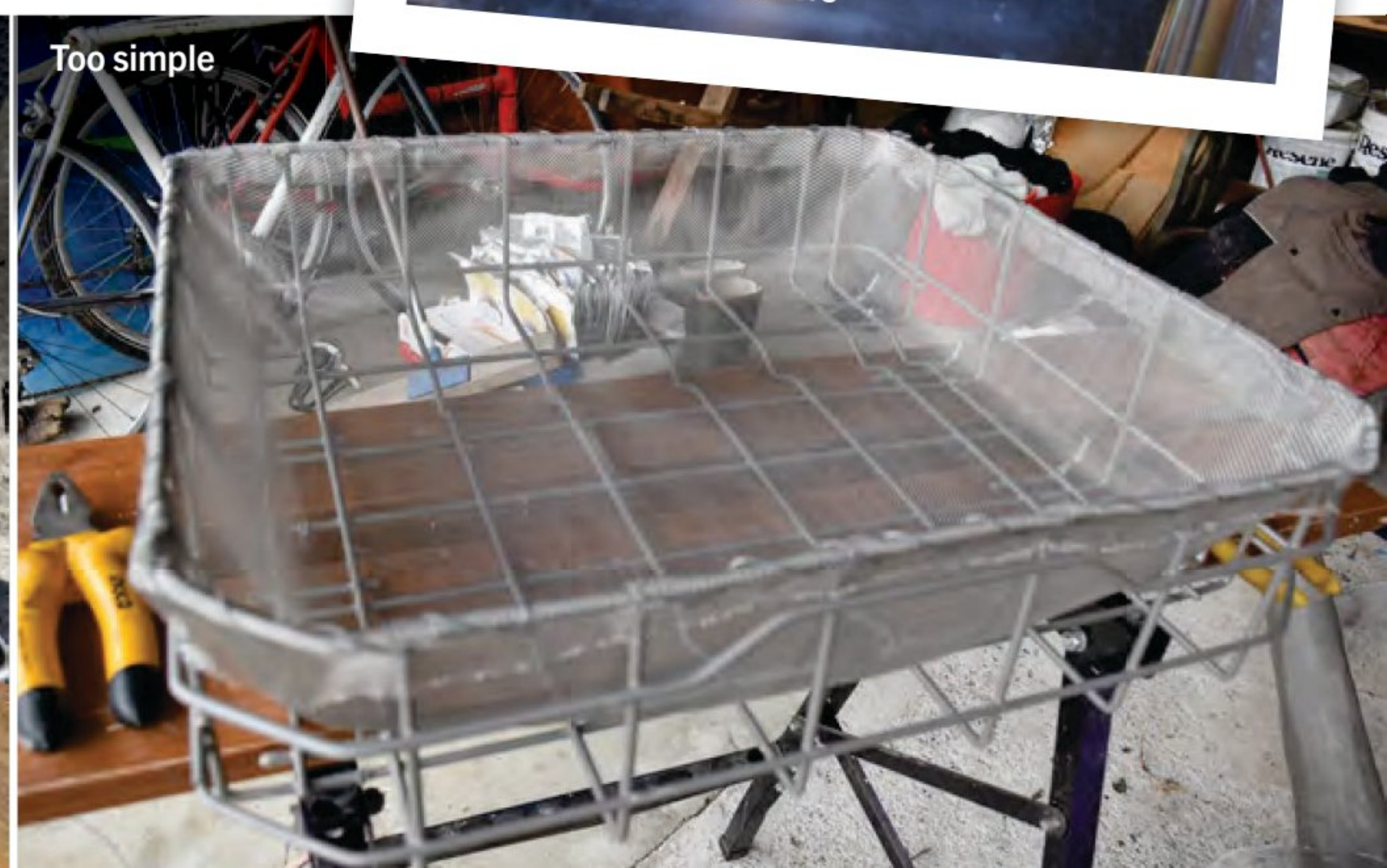
mesh (Steel & Tube supplies it by the square metre, in a range of mesh sizes) and went looking for something to frame it with. Walked past our joke dishwasher in the BBQ area, and thought of its redundant tray. (We don’t do dishwashers, indoors or out; if you open this one, the joke is on you: Ken and Barbie are visible, waiting to do your dishes.) Perfect. Chopped off the superfluous paraphernalia, stitched on the mesh, done. A simple, effective, and potentially permanent solution.



Our outdoor dishwashers



Well, it was made to withstand



Too simple



Two from the template; too easy



Nellie the elephant

A while back (*The Shed* Issue No. 100, page 104), I built a tractor-themed bookcase for a farm-domiciled grandchild. It was a ton of fun, but he now has a sibling, and – as far as one can tell in a child of not quite two – she seems more than averagely comfortable around animals. Again, I searched the internet for inspiration; again I freehanded that inspiration onto a full-size board and went from there. With the tractor, I had trouble accurately angle

cutting the shelving; this time, I opted for a pair of identical silhouettes separated by parallel shelves.

A realistic appraisal of my artistic skills suggested that I leave it unadorned, without eyes and suchlike, and I was somewhat in trepidation as I delivered it; this young lady has a reputation for firmly saying “No”, while pointing a finger in the direction of away. I needn’t have worried; her first move was to climb the trunk. ►

“This young lady has a reputation for firmly saying ‘No’, while pointing a finger in the direction of away”



Stomach cramps? Nellie under construction

The new ...



... and the old



Camera shrouds

Some years ago, I bought a Sony NEX camera because it was one of the few models for which cheap underwater housings were available. On land, though, I had trouble seeing the screen, especially in bright sunlight. I figured that it needed a shroud, tried to make an aluminium one, then realised that an off-the-shelf electronics box (from Jaycar, in this instance) would do the job. I drilled the lid so that it screwed up to the camera-mount hole. Cutting the bottom out of the box and attaching it to the lid took mere minutes – and that simple solution has done sterling service in the years since.

My update, a second-hand Nikon, has a back screen that you have to flip to the side, rotate, then flip back, every time you use it. First, it's a time-consuming palaver; secondly, it's a physical failure waiting for somewhere to happen. How much better would it be if it could be

“I’ve also learned to appreciate others who have neatly solved a problem”

left permanently facing outwards? The remedy was obvious: a bigger version of my earlier box. It would not only do the sun-shield thing; it would also protect the screen surface enough that I could leave it permanently exposed. It needed a bigger box than the Sony, but it hasn't been off the camera since. I wonder why that concept isn't sold as an accessory – but there you go.

Contemplation time

I am in never-ending awe of the talented folk who are showcased in *The Shed*, and sometimes feeling a tad imposterish; I'm a generalist by any measure but an expert at nothing. I've also learned to appreciate others who have neatly solved a problem that I've been unsuccessfully wrestling with; those 'oh, that's elegant' moments.

Thinking on, the level of personal talent doesn't really matter; not every runner can win gold, but we can be content doing the best we can do. The main aim, it seems to me, is to have fun, or at least to enjoy the process of making. There has to be a reason – a useful item, a problem solved, or something created that is a visual pleasure – but making is the real joy.

My favourite place these days is in front of my battered Record No. 2 vice (I've known it since I was a nipper; that battering mostly done by me); my working tools within hand's reach; Nat Radio or Alan Parsons or maybe Grieg playing. The best moments are when I've sifted – either mentally or physically – through my 'resource library' and come up with a solution to a problem. The more elegant the solution, the better the moment. But hark – she who communicates by looks is approaching. Quick, hide that boat fitting, look busy, scan that to-do list with suitably thoughtful countenance – dang me, it's gotten longer; how did that happen? 🏠

The new one is just a little bigger



DRYDEN[®]

OilStain

Decking, Hardwood & Outdoor Furniture

Suitable for most exterior timber



DRYDEN[®]

©Dryden is a registered trade mark.



SCAN HERE
for more information
on Dryden **OilStain**

HEART OVER HUSTLE

In a small Canterbury town, a dreamer keeps a timeless craft alive

By Mark Seek
markseek@rocketmail.com



I'm riding south through rural Canterbury, in search of my next article. The Enfield chugs along as I take in the views: scorched hills, bales of winter feed drying in the long summer sun, 4WD utes in the distance eating up miles of dusty gravel roads then disappearing into hinterlands. I can also see dried-up riverbeds and red corrugated roofs with those elegant rolled verandas.

This is the mainland, people, where Swannndri, Red Band gumboots, Canterbury short shorts, and Sheffield pies reign supreme. What more can I say; I love this place and have called it home for the past seven years.

Lots of growth here

"Exodus: movement of Jah people", as penned by Bob Marley, comes to mind. Canterbury is one of the fastest growing

regions. Small towns are being tarted up by young funky couples who are escaping from city life and have seen opportunities to raise their family with rural values. Springfield is one of these small towns, a settlement residing under the foothills of the Southern Alps.

It's a relatively obscure town, and home to a young couple, Cam and wife Amy. They are creative souls who are raising two energetic boys by trusting their instincts for what matters, such as quality time, using the resources they have, and just believing in themselves. How refreshing to see this in a world of mass consumerism and lack of originality!

New approach to pinstriping

Cam has breathed new life into an old and traditional form of art: pinstriping.

Some have labelled it as 'lowbrow' art.



“I know one thing for sure; I am doing what I feel I’m here to do”

It has a loyal following and originated in the US, heavily influenced by guys with names like VooDoo Larry, Ed Roth, and Von Dutch, as well as by the age of horse-drawn carriages/coaches and steam engines with beautifully coloured coachlines adorning them.

I have often admired this art, and a few years ago, I had the pleasure of meeting the owner/artist of Southern Alps Pinstriping and Signs, Cam Albon. Working from his home studio, as well as offering a mobile service, Cam can also be seen plying his craft at car shows up and down the country. He’s not one to blow his own trumpet; instead, he chooses to allow his work to speak for itself. He is self-taught, and the finished works sure do showcase his ability to create individual pieces with a nod to tradition but with a Southern Alps twist.

Cam tells me that his biggest influences as a lad were old agricultural vehicles, trucks, and cars with hand-painted farm or contractor signage and the odd V8 or custom car that rolled through town.

“They always resonated with me, and I was hooked,” he says.

I ask Cam whether it worries him not to have a regular day job.

“I have to be honest; it does for sure from time to time, especially having a young family to provide for,” he says. “In the quiet times, it’s tough, but we have chosen this lifestyle for a reason. It was an agreement that my wife, Amy, and I made to each other influenced by those health scares. It made us more determined that we live the life we dream of. We both put our mental and physical well-being over material things and bigger pay cheques – life experiences rather than life expectations.”

Lifelong friends

Cam reflects that his past work life was a continual grind in the commercial construction field with little job satisfaction.

“But now I get to meet so many amazing people with incredible stories about how they came to be the custodians of these beautiful classic machines and relics from the past.

“Some of my clients have become lifelong friends – something both my wife and children cherish.”

Cam learnt, and often refers to, the term ‘a silver lining’ – the ability to overcome some dark days and to search for the positive in a possible negative situation.

Having learnt this myself through health scares, I know that it’s something worth fighting for: freedom to press on despite setbacks, and to build your life around family and passion, the likes of which gets you out of bed each day.

I am impressed by what I am hearing, and am glad that I have an opportunity to hear someone else think this way: heart over hustle, as I like to call it.

Cam continues, “I have always given things my best, which is a view my grandad and dad instilled in me from an early age through woodworking; use your eye for detail, take your time, and accentuate the beauty of an object, creating a craftsmanship mentality.

“Process is very important to me; when an enquiry for pinstriping, lettering, or coachlining comes to me, I always start with a conversation between the client and myself. I ask if there are some references they have collected; I will then begin to create a rendering to fit their pride and joy from these images. Once that has been

approved [by the] owners, I mock up a final concept before any brushes hit the tin.

“I always want to leave a job wishing it were mine and I’m very proud of it. The automotive community is an interesting bunch; often they will have their own striper working on their fabulous Thunderbirds or ’30s [American] Graffiti coupes – even café-style motorcycles or bobbers.

“Last year, NZHRA [New Zealand Hot Rod Association] approached me to design its apparel logos, which I feel extremely privileged to be part of, and I can honestly say it has all been so worthwhile.”

Follow in Dad’s footsteps?

The future for this man and his family?

Well, his boys have shown a fair bit of interest in Dad’s line of work. Cam has been teaching them the basics of brush-work, as his father and grandfather did to him through woodworking. You never know; hey, they may even take this on in the future – wouldn’t that be great?

Cam says, “I know one thing for sure; I am doing what I feel I’m here to do by keeping a heritage skill alive for more generations to enjoy.”

As I rode away on my Enfield, I felt inspired by my conversation. I hope that it may inspire you to believe in your dreams and ask yourself whether you are doing what you were born to do.

Cheers, Cam, Amy, and the boys!

Cam is always approachable, and is keen to show people his craft from his little piece of paradise in rural Canterbury. 📍

info@southernalpspinstriping.com

022 071 3178



WHEELS WITHIN WHEELS

When viewing the interior of a stunning restoration, there is nothing worse than confronting a substandard steering wheel. It's an often-overlooked centrepiece, and a defining line between a great restoration and an average one

By Quinton Taylor

Photography: Quinton Taylor and Gary McNeill







European marque wheels now come from an Auckland company for restoration

In any detailed vehicle restoration, there is surely nothing more satisfying than climbing behind the steering wheel and sitting back to admire the finishing touches that make all the difference.

The paint, the chrome, and the trim all look great, as does the interior with its new-car smell capped off with soft new carpet. The instrument panel is clean and fresh, while the touches of polished wood or machine-turned metal surrounding those carefully restored gleaming gauges catch your eye.

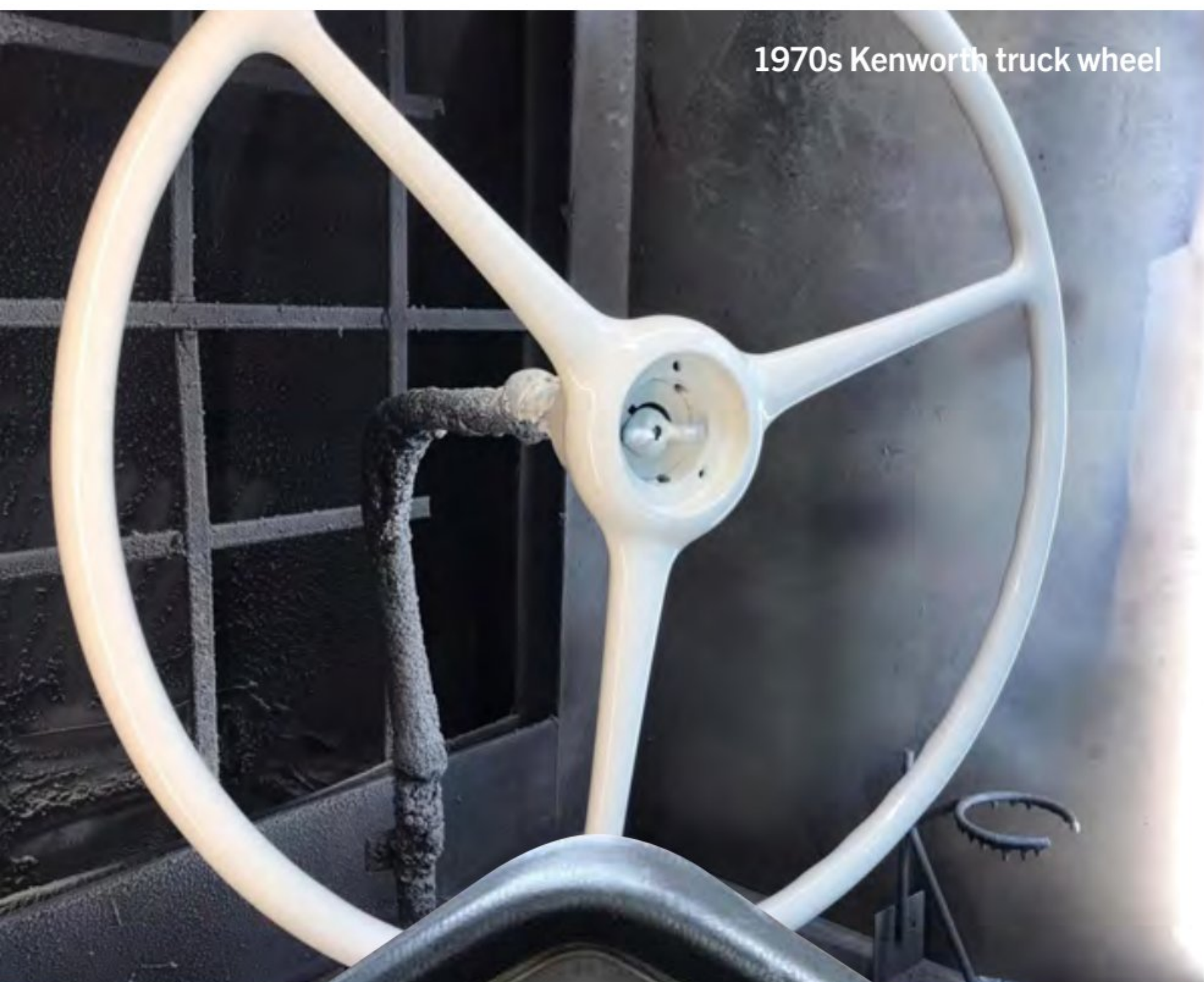
As your hands move slowly over the steering wheel, a sudden, sharp reality sets in. Despite your best efforts, that wheel doesn't seem good enough; you immediately think it could have been better.

That's exactly the dilemma Otago car enthusiast Gary McNeill faced some years ago while restoring his car. He recalls the many hours that he spent solving the issue of restoring steering wheels to an acceptable standard without losing their originality.

"It was about 20 years ago," he says,

"and I was restoring my 1970 Ford Mustang Boss and the wheel needed to be restored. I ended up buying a restored wheel from America, a Rimblow steering wheel to suit the car. When it got here, it was terrible. There was just no way I could put that on a half-million-dollar car!"

Gary discussed the issue with a work colleague, whose great-uncle was experienced in the wood-graining techniques that he had learnt in his 92 years. He showed Gary how to use wood-grain pattern techniques the 'old school' way.



1970s Kenworth truck wheel



This can be repaired



Rare before and after (right) of a Ford Mk3 GT/GXL pad



“He restored antique and vintage cars like Model As. I thought that was the first step, as these steering wheels have the artificial wood grain around them. I then thought, *What’s going to fix up all the cracks and all the missing plastic?*, so I spent months on research. I quickly worked out that nothing would really stick to plastic; not to repair those big cracks in the plastic, that’s for sure.”

Special sauce

After a lengthy search, Gary found the solution in a product he calls “my special sauce”, a product used in the medical industry.

“It was absolutely fantastic for plastic, and I always use it. I had to modify it because it was in a liquid form. I had to

add filler to make it more of a paste, and I inject that into the wheels and into the plastic and cracks.”

As GT Ford Falcons use the same or similar wheels as the Mustang, Gary suddenly found owners of these Fords were interested in his process: “I suddenly had a couple of Mustang guys saying, ‘Hey, will you restore my wheel for me?’ I restored their wheels, and I was thinking that maybe there was a bit of interest there. I ended up restoring one wheel for a guy in Australia, and he was a member of the Falcon GT Club of Victoria. All of a sudden, I started getting all these enquiries.”

Gary hadn’t constructed a website at that stage; however, he started getting a number of GT wheels forwarded to his address. ►

“After a lengthy search, Gary found the solution in a product he calls ‘my special sauce’, a product used in the medical industry”

Preparation – the key to a top finish





“I did that, and didn’t really think anything more of it until I saw a three-page article in this magazine. From there, it just went crazy”

Left: Simple two-piece clamped moulds in a range of sizes give basic shapes

“An Australian Ford magazine contacted me and asked if they could do an article on me. ‘Can you take some photos of items of your work?’ I did that, and didn’t really think anything more of it until I saw a three-page article in this magazine. From there, it just went crazy. My son, who was about 12 at the time, made me a website. From that day on, about 80 per cent of my work is still GT wheels for Ford Falcons and Mustangs,” Gary says.

Branching out

With the success of the restoration of Ford wheels, Gary decided to branch out into other wheels, such as Land Rover, Jaguar, and Chevrolet, and some proved to be quite challenging.

“With any bakelite wheel encasing an inner steel frame, the bakelite or plastic



Detailed perfection



Leather-/Vinyl-padded spoke covers in the correct material can also be obtained



Land Rover rims are also repaired

obviously moves with the heat, separate to the steel, and that is why they all crack," he explains.

In his line of restoration, Gary has restored some interesting wheels; often, originality is everything. Such is their dedication and passion for originality, some restorers insist on authenticity down to the last nut and bolt.

"A guy sent me a wheel from an XY GTHO Falcon, and when it got to me, I told him I could not restore the wheel. He said I had to!" recalls Gary.

"I said, 'It's best to get another wheel and we will restore that.' He said, 'No,

it's the original wheel off the car and it's got to be this wheel.'"

It turns out that man's best friend was the culprit in this case: "To paint you a picture of this wheel, his dog had eaten most of the plastic off the wheel. These guys are purists, and it had to be that wheel even though they are not coded or anything like that. He said, 'My father touched this wheel and he's dead now, so it's got to be the same wheel.' So I had to make castings for it." ►

"My father touched this wheel and he's dead now, so it's got to be the same wheel.' So I had to make castings for it"



A challenge, but what a result – restored 1936 Dodge truck wheel



A milestone

An important component of any wheel is making replacements for the padded sections for the spokes, something Gary says that he developed later on, adding new foam and repairing surfaces.

"People wanted them fixed up because they cracked or they needed to be dyed or they go out of shape," he says, "so I made some castings of these pads and I still use the same castings today. I remove the foam from the centre of the pad and I use new foam. While it is still wet, I put them in these moulds and it reshapes them. Plastic fascias are a little bit more technical – not complicated, but

they take a bit of work to make. I dye all the plastic as well, not paint it, as dye fills in all the textures."

Back when Gary first started steering wheel restorations, he never envisaged developing his skills to the point he is at today. It's been a steep learning curve to perfect what he does.

"Back when I started restoring steering wheels some 15 years ago, if someone had given me one of the wheels I do today, I would have said, 'Nah, it's too far gone.' I've probably only ever turned down half a dozen wheels," he tells us.

Earlier this year, Gary reached a

landmark point when he completed his 4000th wheel: "That's off an XY GS Falcon. It's exactly the same as a GT wheel, but it has the GS emblem," he says.

Taking on a challenge

A recent wheel from a Ford F250 pickup proved to be quite a task, as it showed evidence of a hard working life, while one from a '36 Dodge truck was on another level as an extreme challenge, arriving broken, bent, and missing many pieces. It now looks as good as the day it left the factory.

Gary says, "It was missing most of its centre. It was a difficult wheel because obviously I had to replace its whole centre part. I was quite pleased with the Dodge wheel, as it came up really well."

Making special moulds for missing parts was something Gary tried to steer away from, as it was a lot of effort. The Dodge truck wheel was a good example of that, he says: "I didn't recast any of that. I steer away from that as much as possible, as there is a lot of time involved. I just slowly built it up with the product I use. If you can imagine, it's basically like a melted plastic. I can build it up, shape it, and then I can file it, and file it into shape."

A recent addition to Gary's list of wheel restorations is the 'banjo' type of steering wheel – three or four chrome spokes making up each spoke of the wheel – as used in vehicles such as Land Rovers and '36 Fords. He uses the same casting moulds for both types.

"I remove all the bakelite from it into

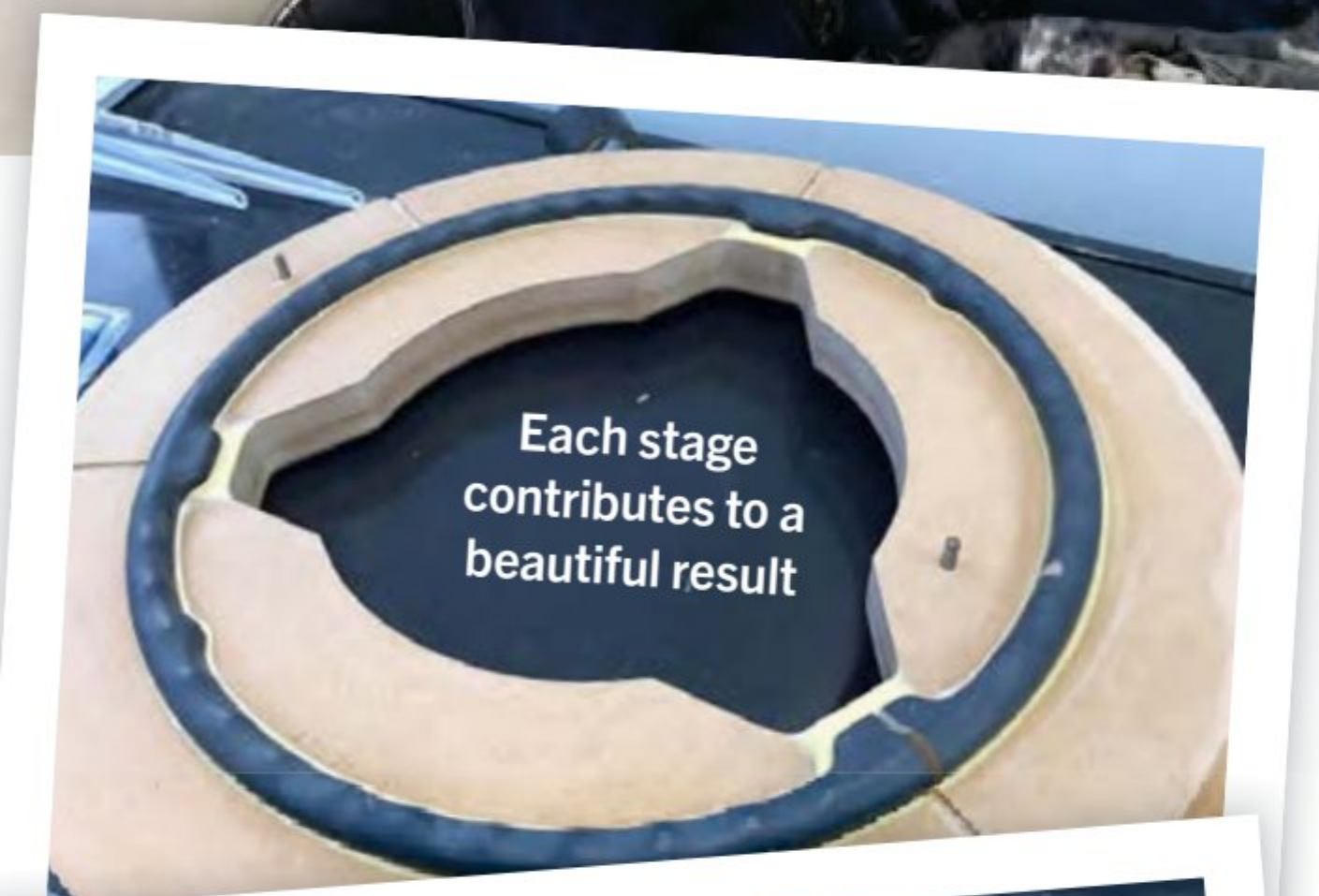
"Back when Gary first started steering wheel restorations, he never envisaged developing his skills to the point he is at today"



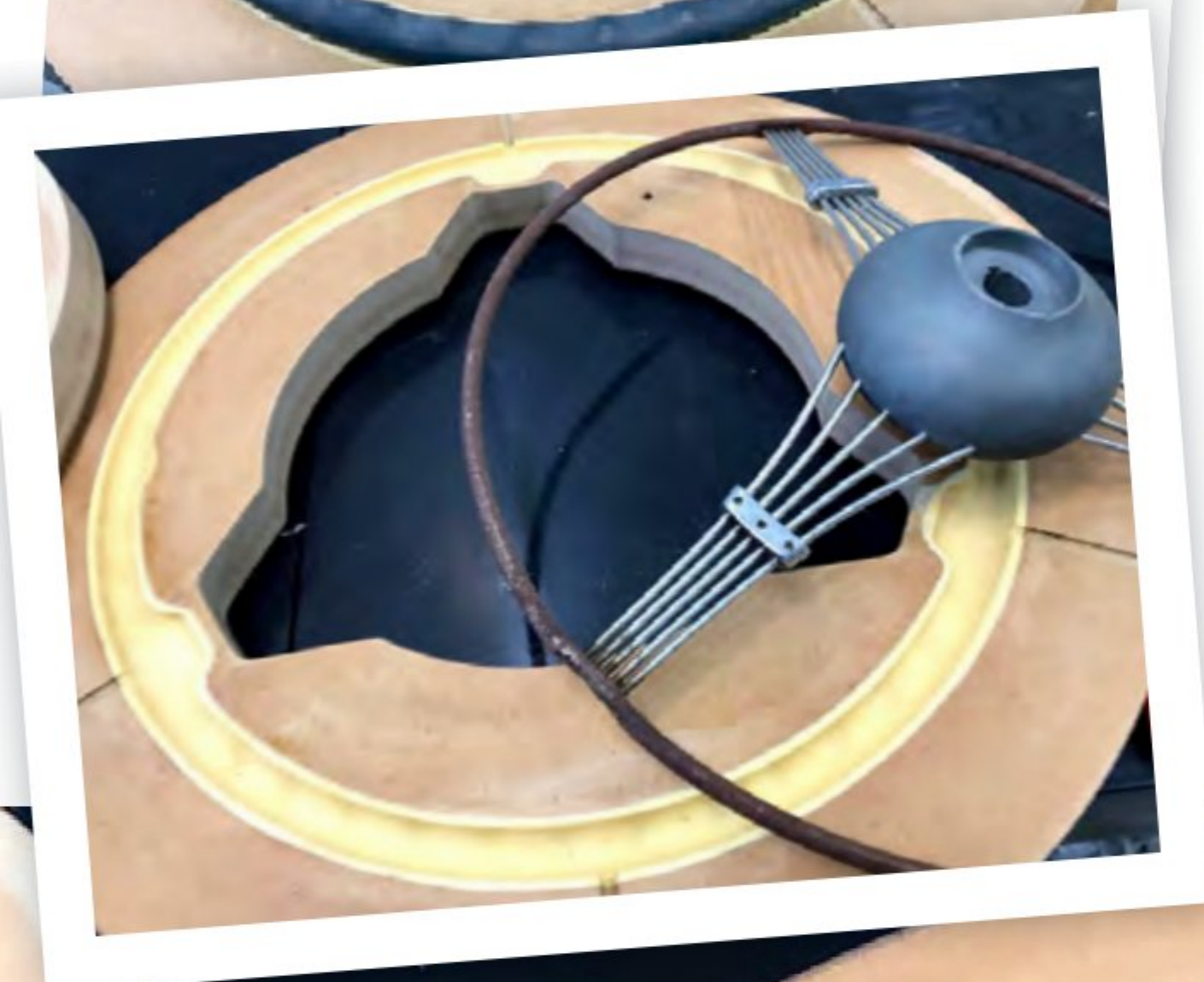
Falcon GT and more intricate steering wheels



Older style wire-sprung wheel-rim repair process: well clamped



Each stage contributes to a beautiful result



a bare shell, treat all of the steel, and get rid of the rust. Then I literally recast it with resin," he explains.

Keep on truckin'

Gary is a keen car enthusiast and owns a couple of classic pickup trucks: a Chevrolet 3100 and a Ford Bronco. Both are fully restored and part of a growing trend in New Zealand and Australia towards truck restoration in pickups and heavy-goods vehicles. As an example, he points out a large white Kenworth steering wheel he has restored.

"I did this wheel for an old Kenworth. Australian truck restoration is pretty

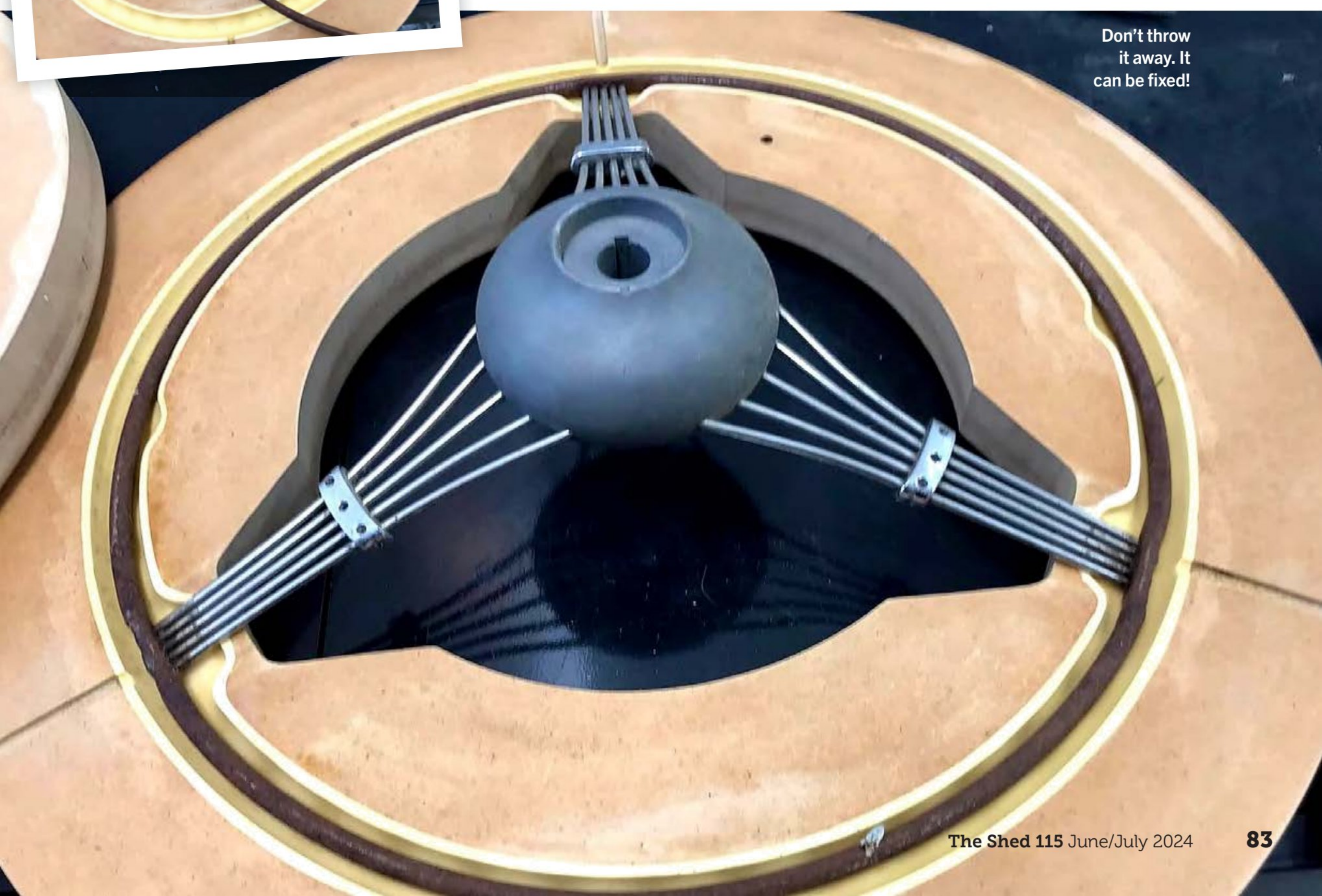
big, too, so I thought I would try and tap into that at some stage," he says.

No shortcuts; the best wheels

"If someone wants a price to do a wheel, then they can message me or contact me on Facebook. An average wheel is around \$550 plus GST," he says.

"A GT Falcon wheel gets a little dearer, because they have so many different stages, wood grains, and all that sort of thing. They can contact me if they want a more accurate price. Otherwise, just put the wheel in the post. It pretty much gets started in the following batch. They don't sit on the shelf here for long

Don't throw it away. It can be fixed!

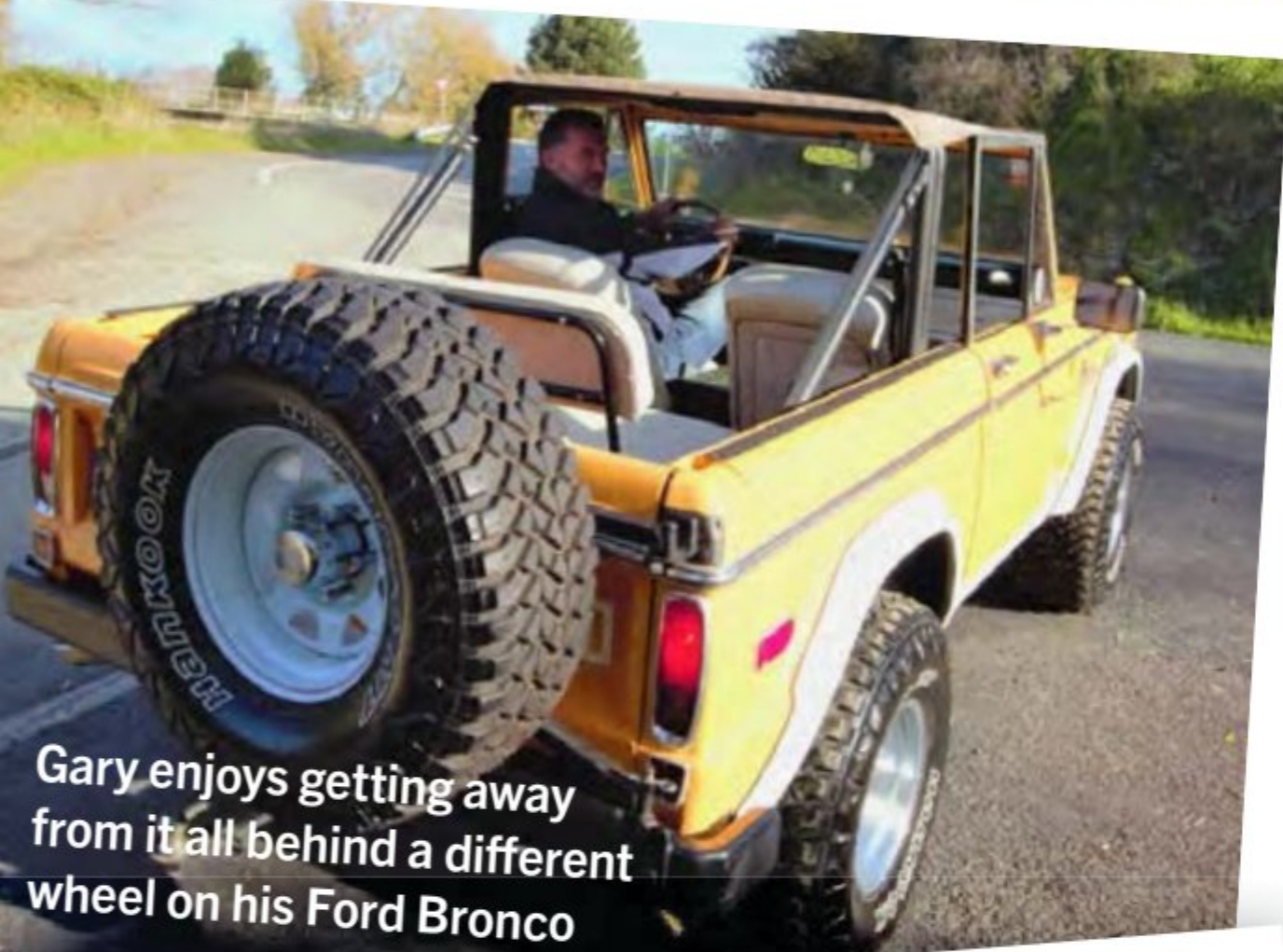




A collection of restored Ford Falcon wheels



This broken Jaguar XK140 wheel has now been returned back to as-new



Gary enjoys getting away from it all behind a different wheel on his Ford Bronco



Mazda RX/808 wheel

periods of time. Within five days, they are started on, and an average wheel takes about two weeks.”

Final finish is where it all counts, and this consists of various spray coats: “The colour is locked in with a ceramic clear, so the colour won’t fade or the clear won’t yellow due to sunlight. It’s a very good, hardy, industrial clear-coat that I use. It’s very durable, and you will never wear it off.”

Satisfied customers

“Obviously, I wouldn’t be in business without good feedback,” Gary says. “The reviews on my Facebook page are all good. Interestingly enough, among the GT Falcon community, for example, if there is any mention of a steering wheel, they say, ‘Hey, you have got to send it to that guy in New Zealand.’ I’ve become the go-to guy. It is very much word of mouth

because, as you know, with car guys it’s a small community and they talk.”

A new off-shoot of Gary’s services is the completion of a steady flow of those aforementioned Land Rover steering wheels – 30 to date. Additionally, with the escalating price of Japanese classics, steering wheels for Mazda RX-3s feature, with about 10 completed so far, and clients have expressed their satisfaction.

“I keep my pricing pretty standard,” he says. “If someone sends me a wheel that is pretty bad, or it is really good, the pricing difference is very little, because there is actually not really a lot of difference in the work needed. Most of the work is in repairing the cracks initially, and that might be only half-an-hour to an hour longer than for a good wheel, so the cost doesn’t really go up from there that much. That’s why I keep my pricing relatively standard.”



1959 Cadillac wheel from rough (left) to new condition

Gary wears a good breathing mask, and his under-bench extraction fan takes care of most of the dust and fumes



“Safety is very important. There is asbestos in some of these wheels, so you have got to protect yourself”

Multiple wheel types

Some makes had multiple wheel types, especially with two-tone wheels, where the colours were separated by metal chrome bands. These require much more work to repair and put back together, which adds to the cost. If recasting of a wheel is required, then the recasting process might only take an hour to two hours and cost about \$150.

“I don’t get carried away in charging a lot,” Gary says. “For example, take the Ford F250 wheel that was missing the whole hub and its casting. There were so many stages because you’ve got the outer, the inner, and all that sort of thing. To make a casting for that was quite complicated, but I charged the guy pretty much the standard rate. The reason I did that was that I wanted the challenge, as I had never done a wheel like that before.

“I said to him, ‘This is what I am going to do, and this is what I’m going to charge you, which is the normal amount, as it’s a bit of a guinea pig for me, but I guarantee you will be happy with the

result when you get it back.”

Gary has found that cases such as this are a valuable learning curve: “I probably lost a lot of money on that because it took me hours in the end, but I know how to do it now. It was a bit like the first Land Rover wheel I recast in that pattern. I said to the guy, ‘Look, I’ll just charge you a standard rate. This is the first time I’ve actually poured a full casting like this in this pattern, so let’s see how it goes.’ The cost wasn’t actually that much.”

Repros

Reproduction wheels are available, but quality varies from manufacturer to manufacturer.

“[For] the GT Falcon wheels I do, which is most of my business, there is now a reproduction wheel. The purists won’t touch the reproduction wheels, but a lot of people go for the reproduction wheel. Again, the market is still there for those who want a genuine wheel.” ►

The finishing touch!





Safety first: with asbestos as well as plastics in some wheels, a mask and under-bench extractor fan are essential

Basic tools

The tools that Gary uses are basic and include the useful ‘king of the do-it-yourself’ home handyman tool, the Dremel. With its various fittings, this is his key tool. He also has a range of different types of files, screwdrivers, clamps, and hammers.

“Safety is very important. There is asbestos in some of these wheels, so you have got to protect yourself. I’m always masked up, and I use air ventilator down-draught work tables and that sort of thing. When you start grinding or sanding plastic or bakelite that is over 50 years old, there is nothing good in it at all.”

A good workshop set-up and atmosphere are essential for the detailed work Gary carries out, especially working with the sometimes toxic materials. Now retired, and with more time to devote to it, what was

once a hobby has become a rewarding business. A move to a new property at Outram near Mosgiel provided an ideal workshop for his restoration work and enabled him to work from home. The well-lit workshop has windows along its length, meaning that almost the whole wall can be opened up on a sunny day, providing a great working atmosphere. He can literally smell the roses!

“It works very well for what I need,” he says.

As a result of being unsatisfied with a reproduction product a few years ago, Gary has developed a reputation for quality rebuilds of an often-overlooked item – one that puts that special finishing touch to your restoration.

You can view Gary’s work at Rimblow Restorations on Facebook. For more information, email Gary at: rimblowrestorations@xtra.co.nz. 



Perforated under-bench, dust and fume extraction is a safety necessity



Adolf von Baeyer

Bakelite

The substance later called ‘bakelite’ was produced for the first time in 1872 by Adolf von Baeyer. Later, Leo Baekeland began experimenting on strengthening wood by impregnating it with a synthetic resin rather than coating it. In 1907, by controlling the pressure and temperature applied to phenol and formaldehyde, he produced a hard mouldable material that he called ‘Bakelite’. It was the first synthetic thermosetting plastic produced, and Baekeland recognised its potential wide range of uses.

While other materials were considered to produce bakelite, wood and asbestos fibres produced the most consistent quality of mouldings. However, after asbestos and its associated health problems were recognised, use of it eventually ceased.

By the late 1940s, newer, less brittle materials, such as thermoplastics and nylon, were superseding bakelite in many areas due to their cheaper costs and resilience to impact.





**STAYS SET
IN ALL
WEATHER
CONDITIONS.**



SELLEYS®

IF IT'S SELLEYS IT WORKS

PART 3

GORDON GOES ELECTRIC

In this issue, our versatile entrepreneur turns his inventive mind to electrical transport

By Ritchie Wilson

Photographs: Ritchie Wilson and Chris Gordon



Chris Gordon is a serious student of the internal combustion engine. He has used his expertise with two-stroke engines to gain several New Zealand championships. The first was with the 125cc MotoGP bike, which was ridden to the 1998 championship by Dennis Charlett. The second was with Nigel Sheppard's superkart, powered by a highly modified 250cc Yamaha TZ250A engine, which Nigel drove to New Zealand championships in 2002, 2003, and 2004. In 2002, he set a lap time for the old Taupō track that was never beaten.

The advantage that Chris had over the competing teams was that he had written a computer program that allowed him to take account of atmospheric conditions to optimise an engine's performance, giving it a winning edge.

Chris had been sent on a residential computer-programming course by his employer at the time, the now defunct New Zealand Electricity Department, when he expressed interest in computers. This, of course, was at a time when education was routinely paid for by the employer, rather than by the employee. ►

"He has used his expertise with two-stroke engines to gain several New Zealand championships"



Donor bike with one of the fore-and-aft aluminium bulkheads fitted

Settings on the day

The other race teams were restricted to making seat-of-the-pants incremental adjustments to their engines to get the best performance that they could on the day. Chris, however, would set up his weather station and enter the air pressure, temperature, and humidity into his Psion palmtop computer and the program would produce suitable carburettor settings. The pilot jet air-screw setting, needle-clip position, and main jet would be specified. The computer would also calculate the amount of radiator masking to give the optimum engine temperature, the cooling system not having a thermostat.

Time to try electric

Chris also has decades of electrical expertise and works in the electrical industry. One of his first non-work electrical projects was a battery-powered two-wheeler. The tiny, road-registered city car that he made many years ago was originally planned to run on electricity.

Several of his recent projects have been electrical. One is a scooter, another a motorcycle, and the third a two-seater mini car, the last being custom-built in China.

The scooter is a minimalist take on the sort of device that is cluttering up city sidewalks and going by names such as 'Lime', 'Jump', and 'Wave'. It has a

“Chris also has decades of electrical expertise and works in the electrical industry”



Chris Gordon and his electric street bike

Inset: The Soul EV – his take on the solution for our cities' traffic problems



The scooter's drive mechanism – battery, motor, chain, large sprocket, and salvaged child's bicycle back wheel



Frame parts ready for abrasive blasting

“The scooter's rear wheel's coaster brake has a neat foot-activation mechanism made by Chris”

12V battery connected to a motor, which drives the front wheel by a chain. Two switches, operating together, control the motor through a relay.

The motor is a starter motor from a Nissan Tercel, rated at 0.9kW, which Chris rescued from a friend's scrap bin. The scooter's energy comes from a standard 12V lead-acid battery of the kind used for alarm systems and the like.

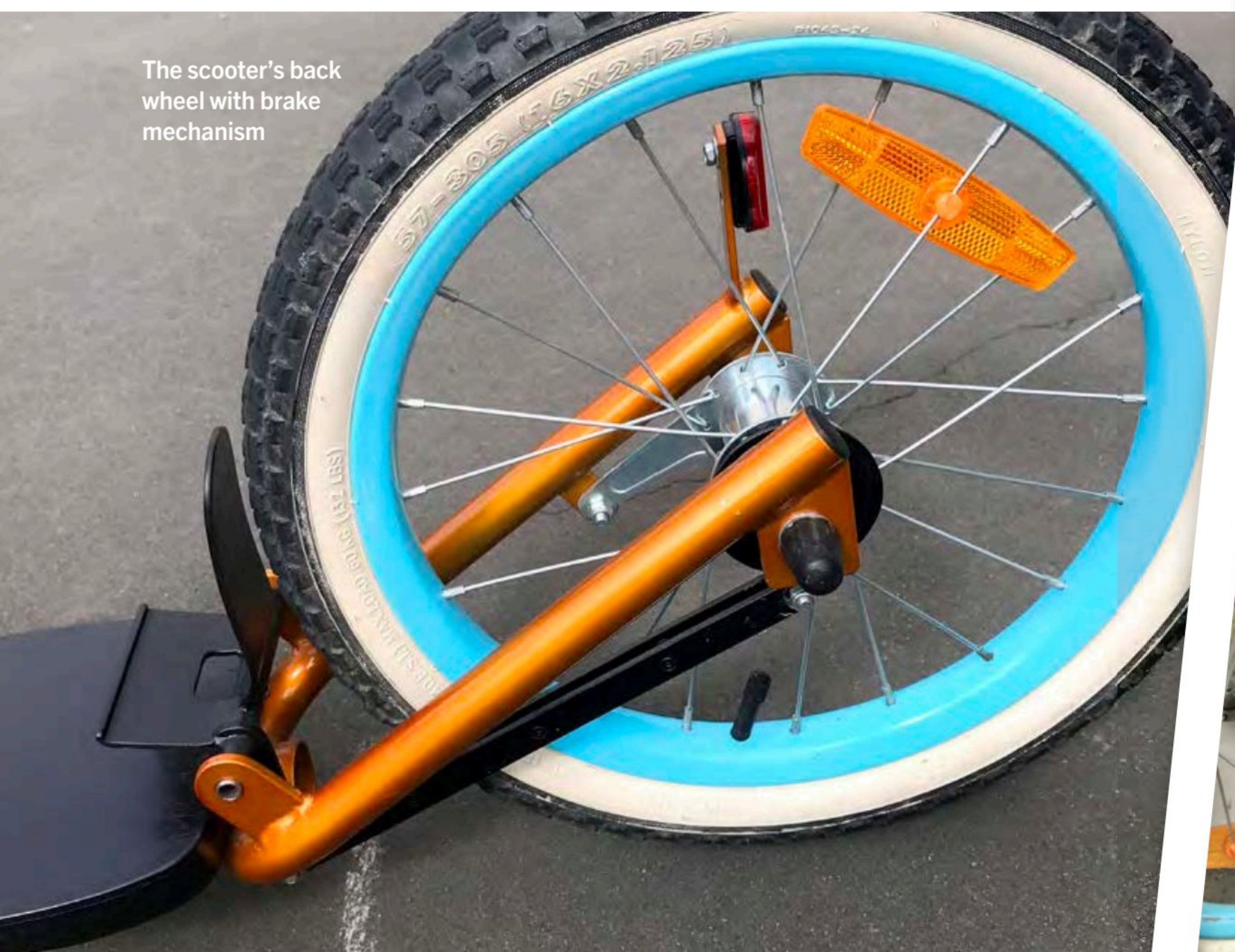
Old bicycle parts

The scooter's backbone is a 30mm steel tube, bent to shape by a local firm. The steering head of a child's bike is braised onto one end, and narrower twin-tubes are attached at the other, locating the back wheel.

Both wheels are from

children's bikes sourced from the Christchurch City Council's EcoShop – and both were originally back wheels, with sprockets and coaster (back pedal) brakes. The scooter's rear wheel's coaster brake has a neat foot-activation mechanism made by Chris. The front wheel has a very large sprocket bolted to its original sprocket and is driven by the chain from the motor. The motor's tiny sprocket was made by Chris.

Crucially, the front wheel's hub has a free-wheeling mechanism, so that the device doesn't come to a screeching halt when the motor isn't receiving power. The large sprocket came from an electric go-kart, which was broken up after years of competition. The kart's motor was used in the electric motorcycle – of which more later. ►



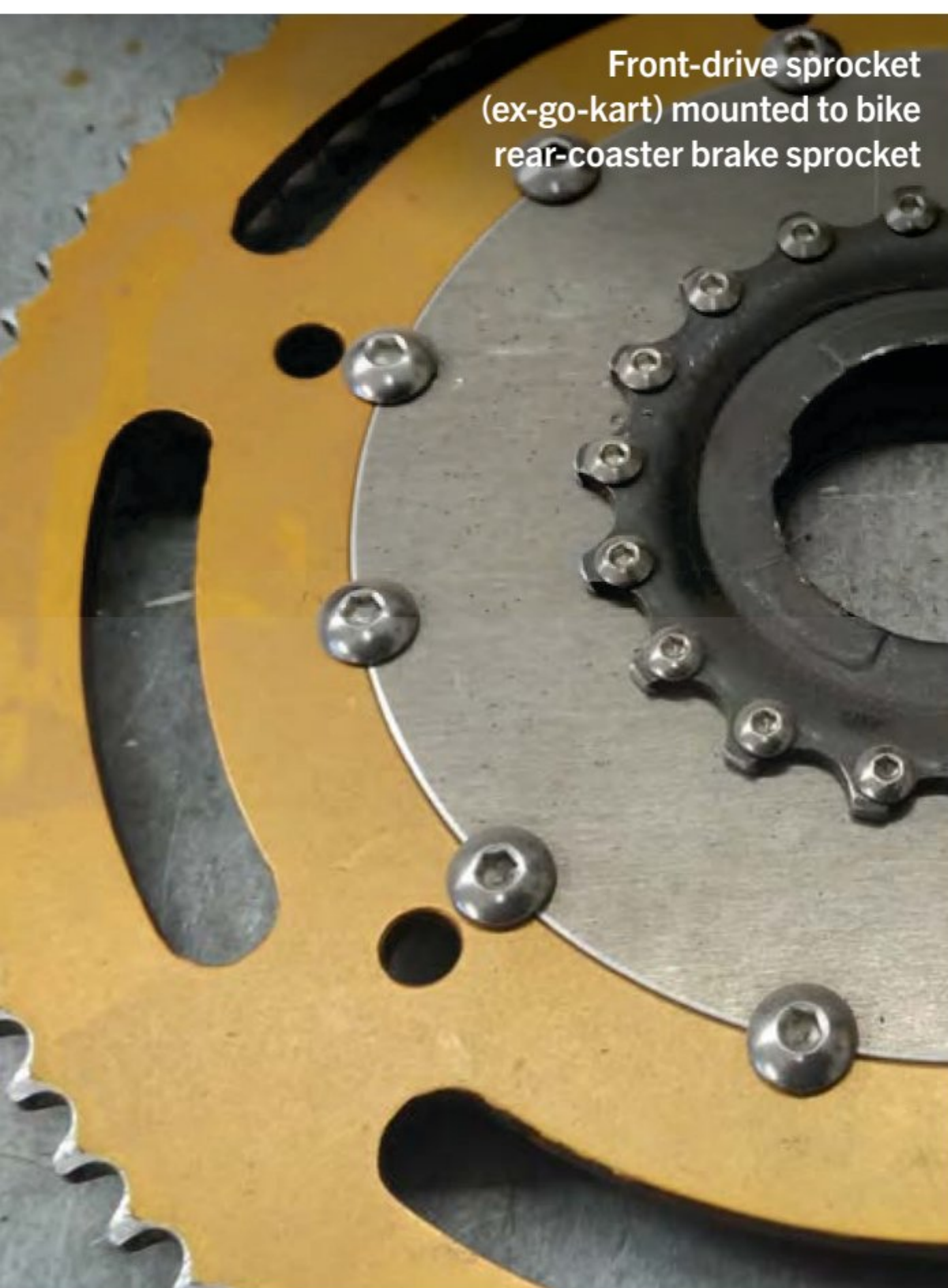
The scooter's back wheel with brake mechanism



Construction of steering head



Basic layout during construction



Front-drive sprocket (ex-go-kart) mounted to bike rear-coaster brake sprocket

One smart scooter

An effective and safe retractable stand is attached to the front axle, so that the scooter can be reliably parked in an upright position. The rider stands on a wooden deck mounted on the main tube. For those readers who have read Parts 1 and 2 of this series, it is perhaps redundant to say that the finish on the scooter is immaculate.

To start the device, the rider pushes off and, once under way, presses the two 10A switches attached to the handlebars simultaneously. A solenoid is activated and electricity flows from the battery to the motor, whose urge is instantly felt, and away you go. It is lots and lots of fun.

Slower speeds are achieved by toggling the switches on and off – almost like the ‘blip switch’ on a World War I Sopwith biplane fighter,

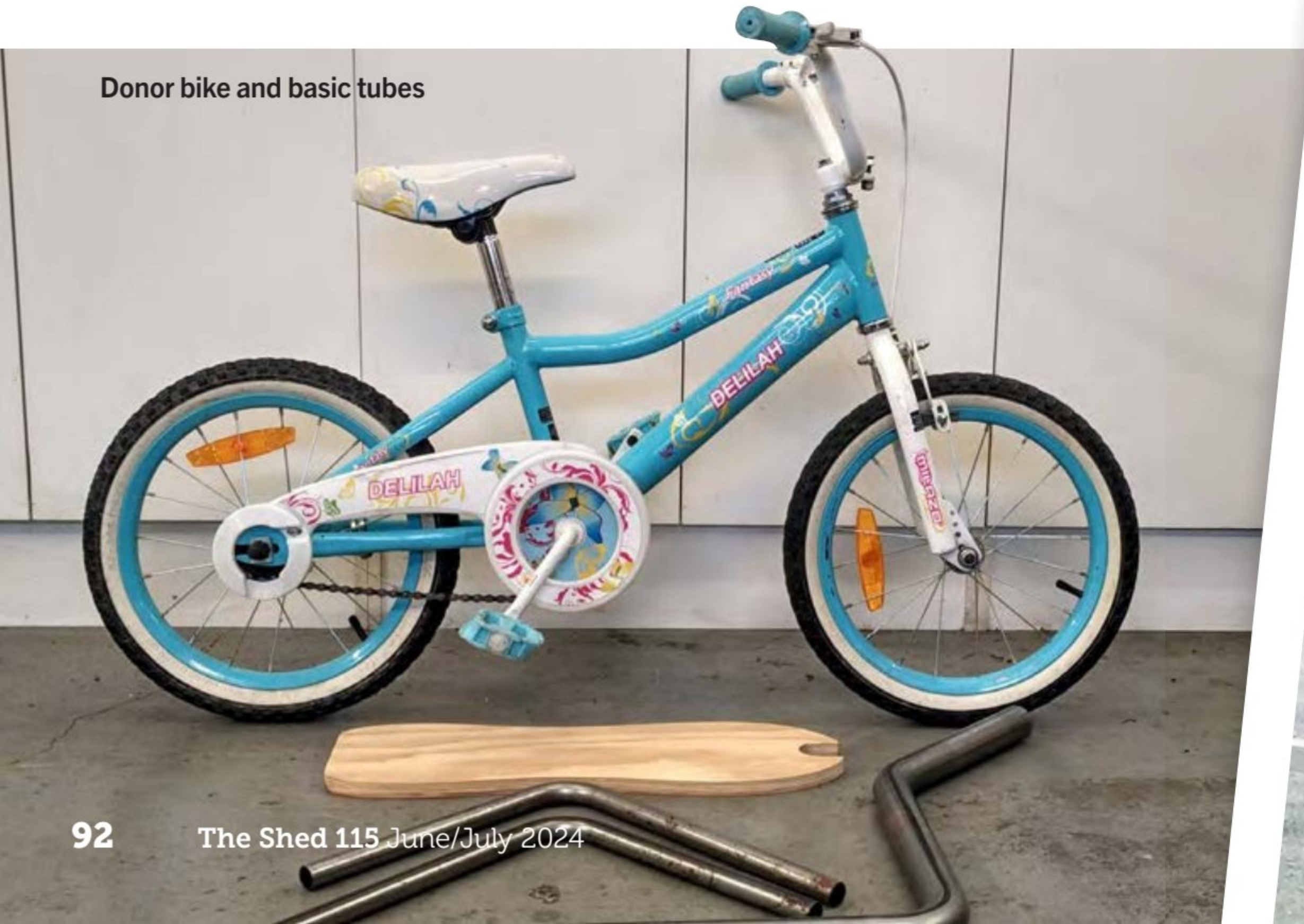
in which the pilot reduced power to the Gnome radial engine for landing by repeatedly switching the engine’s ignition off and on, there being no throttle.

The scooter is a simple but very effective device that cost very little to build. The children’s bikes were \$5 each; the motor was free; and the large sprocket, which may have been quite pricey when new, was part of a motor bought for another project.

Chris’s vision

Chris Gordon had a big idea, a vision really, that the future of urban transport was going to be small, battery-powered cars – a size smaller than a Japanese *kei* car. These are known as ‘Soul EVs’.

They would have the advantages that they would provide much better weather protection and be a bit safer than



Donor bike and basic tubes



The author on the scooter – whee!

two-wheelers, would be able to carry a week's groceries safely, and wouldn't emit greenhouse gases.

Chris corresponded with Waka Kotahi NZ Transport Agency, and it seemed to be of a similar mind. Encouraged, he contacted a Chinese manufacturer of invalid carriages and said that he would buy one, if the manufacturer could modify it so that it could travel at 50kph and have upgraded brakes.

After some back and forth, these requirements were met and the vehicle eventually arrived in its crate. To raise the speed to a maximum of 55kph,

Chris simply exchanged the wheels for larger ones, which meant that he had to make new glass-reinforced plastic (GRP) mudguards. With Chris's extensive experience in making fibreglass motorcycle fairings, this was a relatively simple, although not pleasant, task.

Tiidas have a hard life

The new wheels were sourced from a car dismantler and were originally space-saver spares from Nissan Tiidas.

Many of these useful vehicles are in rental car fleets and, having a hard life, regularly end up in wrecking yards. Five

“After some back and forth, these requirements were met and the vehicle eventually arrived in its crate”

Soul EV as delivered





Chris and his version of the future of urban transport: small, cheap, comfortable, and safe

unused wheels and tyres were bought for a total cost of \$75; the original wheels were sold for \$200 to a person making a boat trailer.

The car's energy is provided by a 72V, 60Ah lithium-ion battery coupled to a

3kW three-phase motor, giving a range of about 50km. The car has a tubular chassis clad in plastic bodywork, with large safety-glass windows.

The interior originally accommodated three small persons but was converted

to a single central seat with a baggage container behind. The steering is similar to that of a mobility scooter, and all the controls are operated by hand, leaving the floor clear.

Chris produced a very detailed proposal for Waka Kotahi and expected that he would be granted provisional registration as part of a trial of the vehicle's suitability for use on Christchurch roads, but this isn't the way it turned out. Waka Kotahi's focus had shifted, and it now didn't support Chris's vision. Getting the car approved for road use now appears to be very, very difficult. Chris is left with a car that he can't drive. It would perhaps be suitable for an airfield or a college campus. A large estate? Private island? He would welcome suggestions.

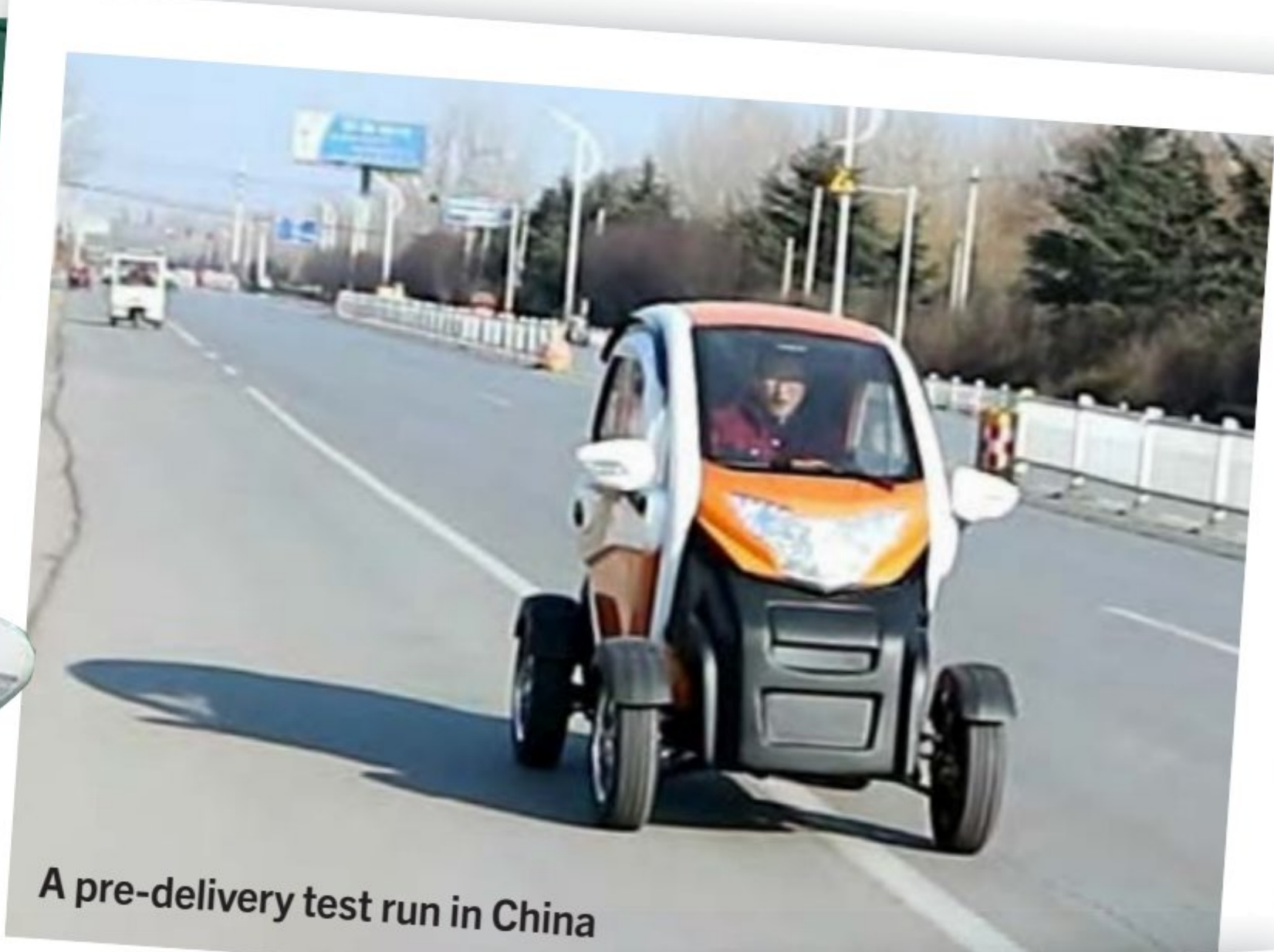
OK, what about an electric bike?

Just as the electric scooter was a development of Chris's building a penny-farthing bicycle, so the inspiration for the electric motorcycle was the battery urban car.

Chris had purchased the motor of an electrical go-kart with a view to upgrading the Soul EV's motor. When the car's performance turned out to be satisfactory, the motor was surplus.



Chris's Soul EV is tiny. Vehicle manufacturers' profits per tiny car would also be very small, which is why they aren't all rushing to make city cars



A pre-delivery test run in China



The Soul EV's charging port



Interior of the Soul EV showing the single seat, the bicycle-type steering, and the cargo container

What to do with it? How about putting it into a motorcycle frame and making an electric bike?

Chris purchased an unused Kimbo 250 frame that had been scavenged for parts by the Kimbo importer. Brackets for mounting the water-cooled motor and its radiator were fabricated and braised onto the frame. The Kimbo is a Chinese copy of the Honda CBR250R, a well-respected Learner Approved Motorcycle Scheme (LAMS) bike.

Chris has an encyclopaedic knowledge of two-wheelers and says that Honda is making a modern version of the CBR250R, called the 'ZX25'. The three-

phase motor was made in China by the Golden Motor company and is sold with a 500A controller designed by the American Kelly Controls company.

The bike's battery contains 114 tiny 12V lead-acid batteries. These are used, 'time expired' units bought for their scrap value. Six of these small batteries are combined in series to produce a 72V battery; 19 of these 72V batteries are then connected in parallel. The 72V gives the motor a power of 10kW. The more batteries, the more range. If a small range is acceptable, the battery can be relatively small. If the top speed is limited, the range will be greater for a particular size of battery. ►

“Getting the car approved for road use now appears to be very, very difficult”



Mock-up stage: wooden patterns used to determine locations of motor and battery packs around existing frame parts – lots of compromises



Battery packs – 72V, 1.9Ah

Fitting batteries is an issue

One of the major problems with an electric motorcycle or car is the packaging of the batteries. These are bulky items, so where will they fit?

Chris's solution was to design two aluminium fore-and-aft bulkheads, which would support the 19 bundles of batteries. After much trial and error, he made two plywood templates, which Autobend Ltd reproduced in 8mm aluminium plate. These bulkheads sandwich the batteries between them.

Chris doesn't like exposed wiring, so he made sure that all cables were hidden from sight – for example, the wiring

around the front headlight and indicators is concealed inside a black-painted coffee-powder container.

Unfortunately, between the end of its competition life and Chris buying it, the electric motor had suffered water damage. To repair this, Chris had to take the motor to pieces. The motor's startlingly strong permanent magnets, embedded in the aluminium casting, made this very difficult, but the use of wooden wedges eventually proved successful. Chris says that the repair of the Hall effect electronics required a steep learning curve, even for someone with his electrical knowledge and expertise. ►

The bike's electric motor rotor, which, when assembled, is sandwiched between two stators. It has very strong permanent magnets inside an aluminium casting



Uncluttered front of the electric bike



“Chris doesn’t like exposed wiring, so he made sure that all cables were hidden from sight”

Donor bike with water-cooled three-phase electric motor and radiator fitted



“There is obviously a relationship between Chris’s productivity and his clean, neat, and well-organised workspace”

One busy sheddie

Chris does most of his work in his shed in the early evening, between arriving home from work and having his evening meal. He may sketch a proposed design, make cardboard prototypes of metal bits, or decide what he will do as he goes along. He only makes detailed drawings of the components he outsources.

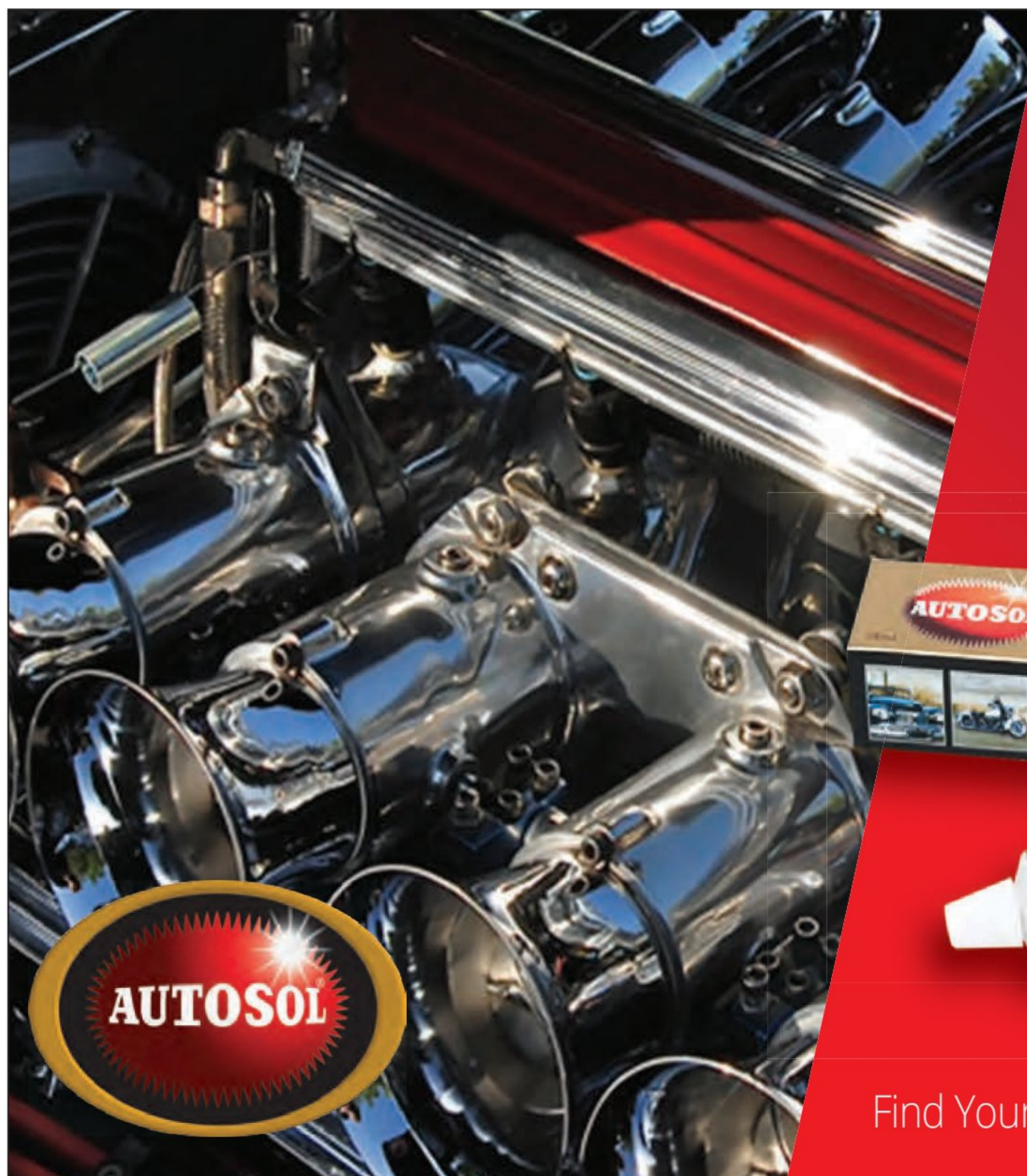
There is obviously a relationship between Chris’s productivity and his clean, neat, and well-organised workspace. What may be more significant is that he works on his

projects virtually every day of the year, so that there is always progress being made, maintaining enthusiasm for a job that may take many months, even a few years, to finish.

He is in the very early stages of a new build. If the name Ed ‘Big Daddy’ Roth rings a bell, you will probably have some idea of how it will turn out. A few things are certain: recycled bits will be extensively used, the design will be cleverly offbeat, and the final product will have an immaculate finish. 🏠



Electric bike in Christchurch's Port Hills in 2020



A Brilliant Shine Every Time.
Clean, Polish and Protect.



AUTOSOL

Find Your Local Stockist at www.hobeca.co.nz

BUY • SELL • TRADE

TOOL BARN
The Home Of Preloved Tools

NEW & USED TOOLS

\$29
Dual carabiner lanyard



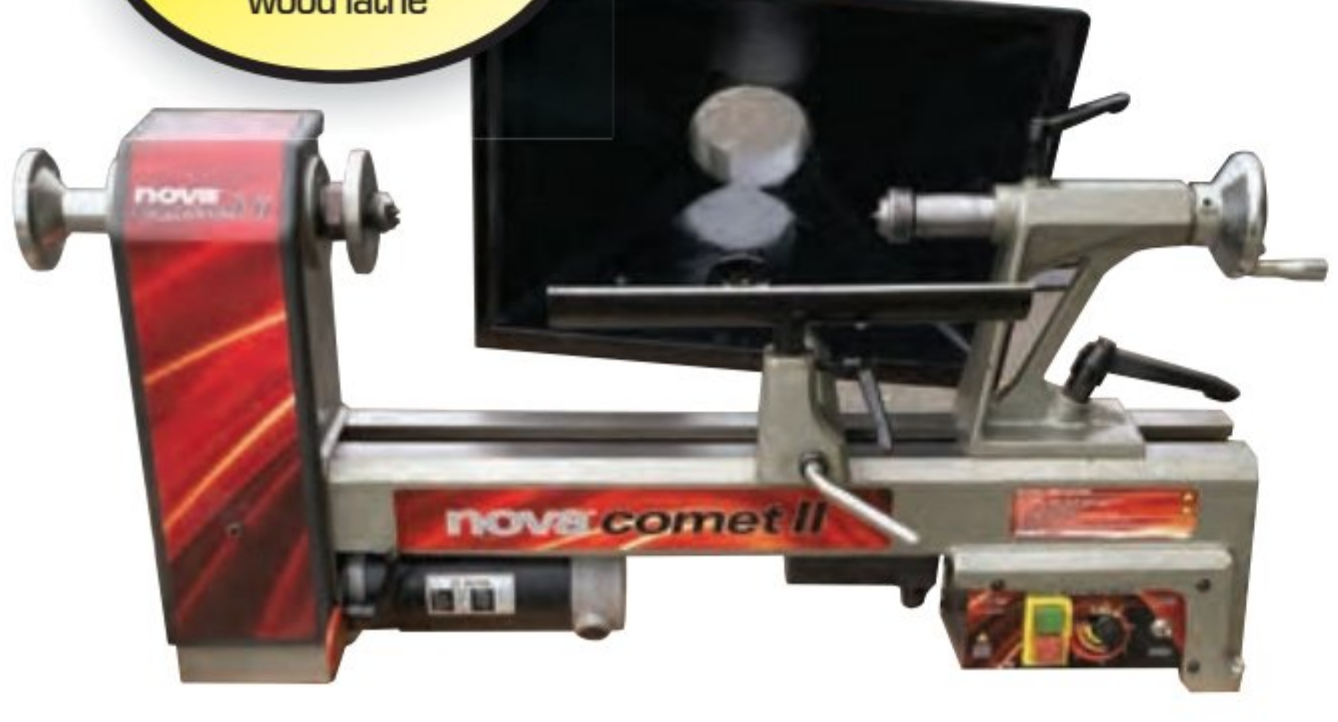
\$375
Mitutoyo bore gauge
35-60mm



\$287
Quickcore holesaw
set 19-64mm



\$675
Nova Comet
wood lathe



\$95
Large leather
swivel bucket



Komelon measuring
tapes various prices



\$85
Bessey f-clamp
200 x 100mm



45 Jellicoe Rd, Panmure, Auckland
Phone: (09) 570 8064 Email: toolbarn@xtra.co.nz Website: toolbarn.co.nz

It's a gas

Use industrial gas for your shed projects? Chances are you're paying ongoing cylinder rental fees whether you're using the gas or not.

Eziswap Gas works differently. It operates a 'cylinder swap' system. Customers initially buy a full cylinder of their required gas or gas mix, use the gas, then swap the empty cylinder for a full one, paying only for the gas used. This way, customers avoid paying any ongoing cylinder rental fees.

Worried about the initial cost? You can buy a cylinder of your choice from the Eziswap Gas website (eziswapgas.co.nz) and check out with Afterpay. Using Afterpay, you can spread the cost over eight weeks (conditions apply).

With more than 57 swap centres nationwide, Eziswap Gas is a better way to purchase industrial gas. It's also New Zealand's only 100 per cent Kiwi-owned, nationwide industrial gas provider. Win-win!



Hi-Q Components has it all tied up

If you're looking for plastic cable ties and mounts, and cable management components, it's hard to beat Hi-Q Components' comprehensive range, which covers just about anything you'll need for the job in hand.

Its selection of plastic fixings and fastenings includes standard strap-type cable ties, from 75mm x 2.4mm to 1500mm x 9mm; as a bonus, many sizes are available in weather-resistant black nylon for outdoor use. Hi-Q also has specialist ties covered, with stock including HVAC duct straps, heavy duty for hydraulic hoses, releasable, screw mount, marker, push mount, double loop mounting, hanking, and beaded ties. As well as cable ties, Hi-Q offers a great selection of cable tie mounts, such as quick and easy self-adhesive tie mounts, and push and lock clip mounts for through-hole panel mounting.

For further information and samples, contact: sales@hiq.co.nz or phone 09 415 3333.



Rev Up Your Ride: Explore the All-New 2024 Harley Catalogue

Discover the newest edition of the Harley Davidson Catalogue, now accessible in store. Immerse yourself in its expansive 700 pages, showcasing an array of bikes, parts, and accessories, offering enthusiasts an extensive selection to explore and enhance their riding experience.



GRAB YOUR COPY FROM OUR ONLINE SHOP, **MAGSTORE.NZ**

OR FIND THIS ISSUE AT YOUR FAVOURITE MAGAZINE RETAILER



**NEW ISSUE
ON SALE NOW**

WHO AMONG US HASN'T GOT A MINI MEMORY?

Minis have a passionate following and are adored by millions of classic car lovers the world over. The cover article in the current issue of *New Zealand Classic Car* magazine features a much-loved 1978 LE model.

Whether it was their first car, a Mini for Mum, road trips with a car filled to bursting with people and luggage, or boy-racing escapades, everyone has a Mini story.

With its cute-as looks, the Mini has the ability to become a member of the family, and this yellow one, nicknamed 'Gertie', is no different. The Kelly family of Dunedin are dedicated Mini fans from way back, and this LE is just one in their collection – albeit something of a favourite.

Also in this issue is an article on a Ford Zephyr owner who has developed his own engine block with hidden Toyota 2JZ architecture – quite an undertaking (see image above).

PLUS: 1963 Mercury Comet, 1989 Mercedes-Benz 300E, Ford Escort Twin Cam, 2004 Corvette C5 Z06, Berkeley sports cars, part 2, Kiwi hot rod history, and so much more.

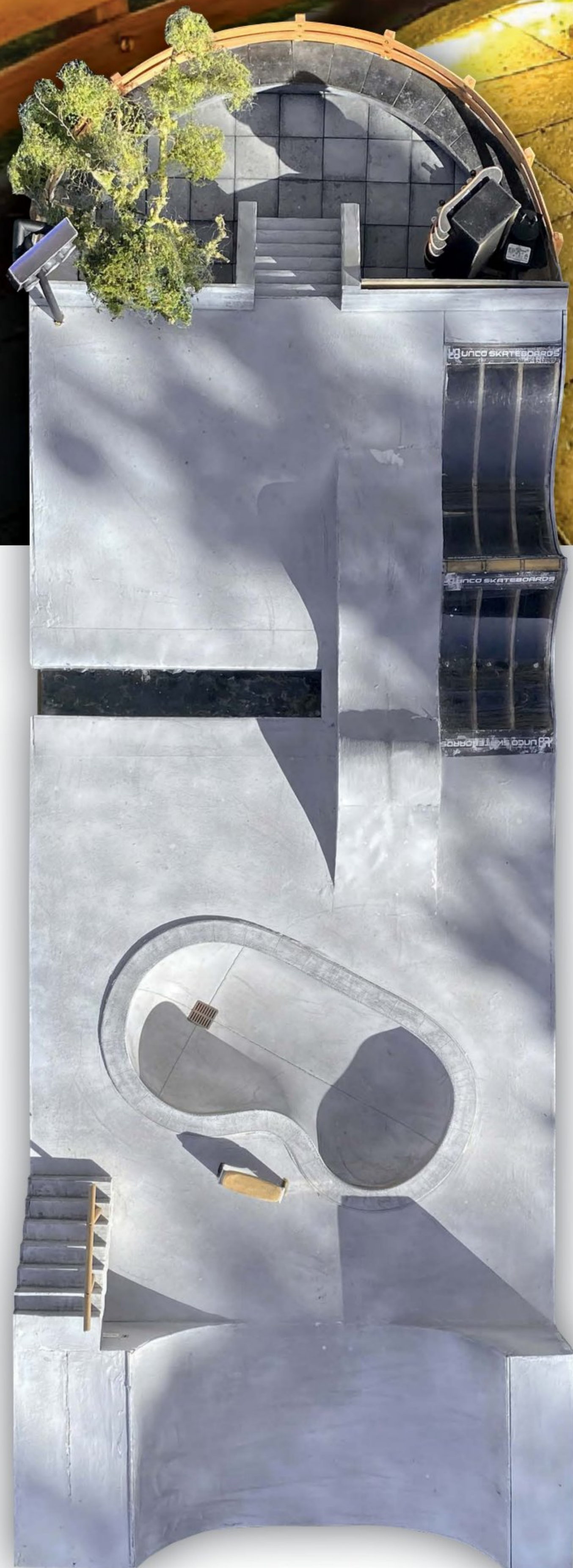
See classiccar.co.nz for a complete illustrated content rundown.



**SUBSCRIBE TO NZ CLASSIC
CAR FROM ONLY \$35!
HEAD TO MAGSTORE.NZ**

Jamie gets one more skate in before dark

Below: An aerial view of the skatepark



SK8 TILL LATE

A dad builds his kids the ultimate miniature skatepark for under \$100

By Mark Gibson
Photographs: Mark Gibson

Maybe *The Shed* and kids seems an unlikely combination, but when you are a kid living in an adult body, it kinda makes more sense. I've got three kids, and my younger ones, Bella and Jamie, have become quite the crafty little groms.

So, why not harness that creative streak and build the ultimate fingerboard skateboard park?

Let's get started

This project's inspiration came from a random Trade Me find for a brand-new but slightly damaged door for the princely sum of \$5.

What a great platform for a project! At the time, the kids were hooked on an Auckland-based Youtuber, David Jones, with his one million followers. He makes very entertaining videos based on

“The theme was – you guessed it: a fingerboard party, where her friends would build their own skateboards and then skate on this epic new build”



fingerboard skateboarding (miniature skateboards that you ride with your fingers).

Righto, back to our skateboard park. With this very light and incredibly sturdy MDF door in the car, the project could start – and oh what fun to be had with all the ideas and possibilities!

We knew of a kitchen company that sold offcuts of 3, 4, and 5mm MDF sheets for \$2 each, so we knew from the get-go that this skatepark was not going to break the bank. The kidney-shaped skate bowl would set the tone for the

park and the height from this would dictate the height of the park, so we placed some small 2x4 offcuts sparingly around the outside to set the structure.

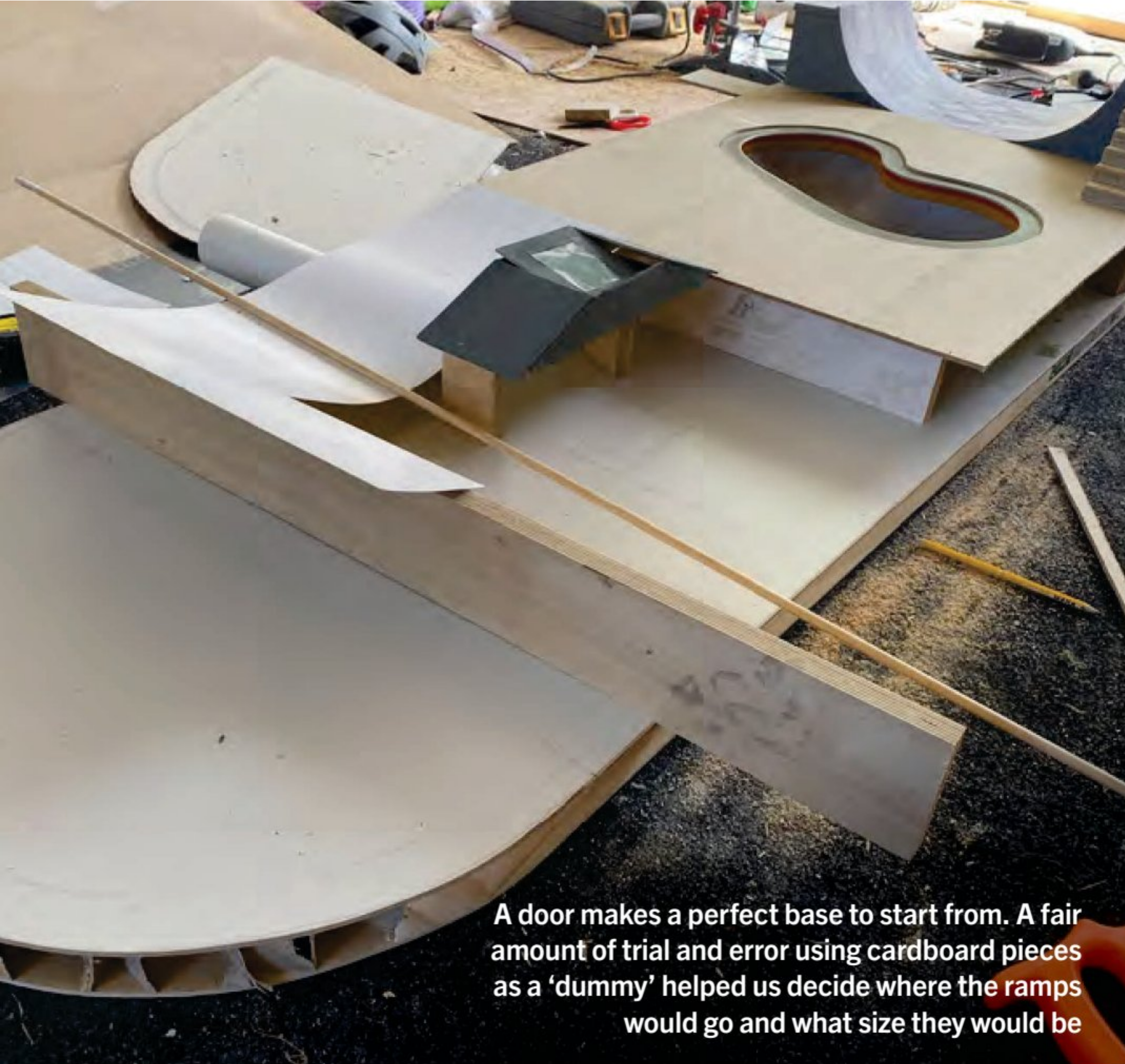
After some sketches and ideas from the kids as to where the ramps, jumps, etc., would go, we set to work. Luckily, we had a deadline for this build, as Bella had a birthday party coming up in four weeks and the theme was – you guessed it: a fingerboard party, where her friends would build their own skateboards and then skate on this epic new build. ►



Jamie and Bella get to work on the base coat. We used various brushes, sponges, and spray paints to get the concrete look we were after



Jamie transitioning from the half-pipe to the stairs for a tail slide



A door makes a perfect base to start from. A fair amount of trial and error using cardboard pieces as a 'dummy' helped us decide where the ramps would go and what size they would be



After playing around with some cardboard dummy options, we created some timber 'ribs' to form the base of this ramp section. Four pieces were screwed together, placed in the vice, cut using a jigsaw, then unscrewed and spaced apart — as seen here

“A 2m LED strip was added around various parts of the park for those night skate sessions”

Some structure

We decided that one end of the park would look better rounded, so a radius was drawn up and cut with the jigsaw. Another maths lesson from Dad!

Some 5mm MDF was used for the structural parts, and thinner sheets for the rest. For the sides, pieces of MDF that were generally the right size were taped up, pencilled marked according to where the skate ramps were, and then cut with the jigsaw.

Some brad nails were used to hold them in place while the wood glue dried. A combo of wood glue and fine brad nails did the job well. Wrapping the MDF around the rounded end of the skatepark was satisfying and reminded me what a joy MDF (and timber, in general) is to work with. Around this time, a 2m LED strip was added around various parts of the park for those night skate sessions.



A second-hand 2m LED strip was purchased off Trade Me and placed along the walls of the stream, around the seating area, and up through the MDF-built skateboard rack



Bella, with her love of all things skate, about to drop into a 'real' skatepark

Paint and detail

Once the joins, gaps, and holes had been filled with some No More Gaps, it was time for some paint.

We used some old house paint and tinted it with test-pot paint. We wanted a concrete grey and, for some detail,

used a scratch pad and bits of sandpaper to roughen the skateable surfaces to make them look worn and used by the skateboards. Some wooden railings (see pic) were constructed using thin garden stakes and balsa wood offcuts from a past project. ►



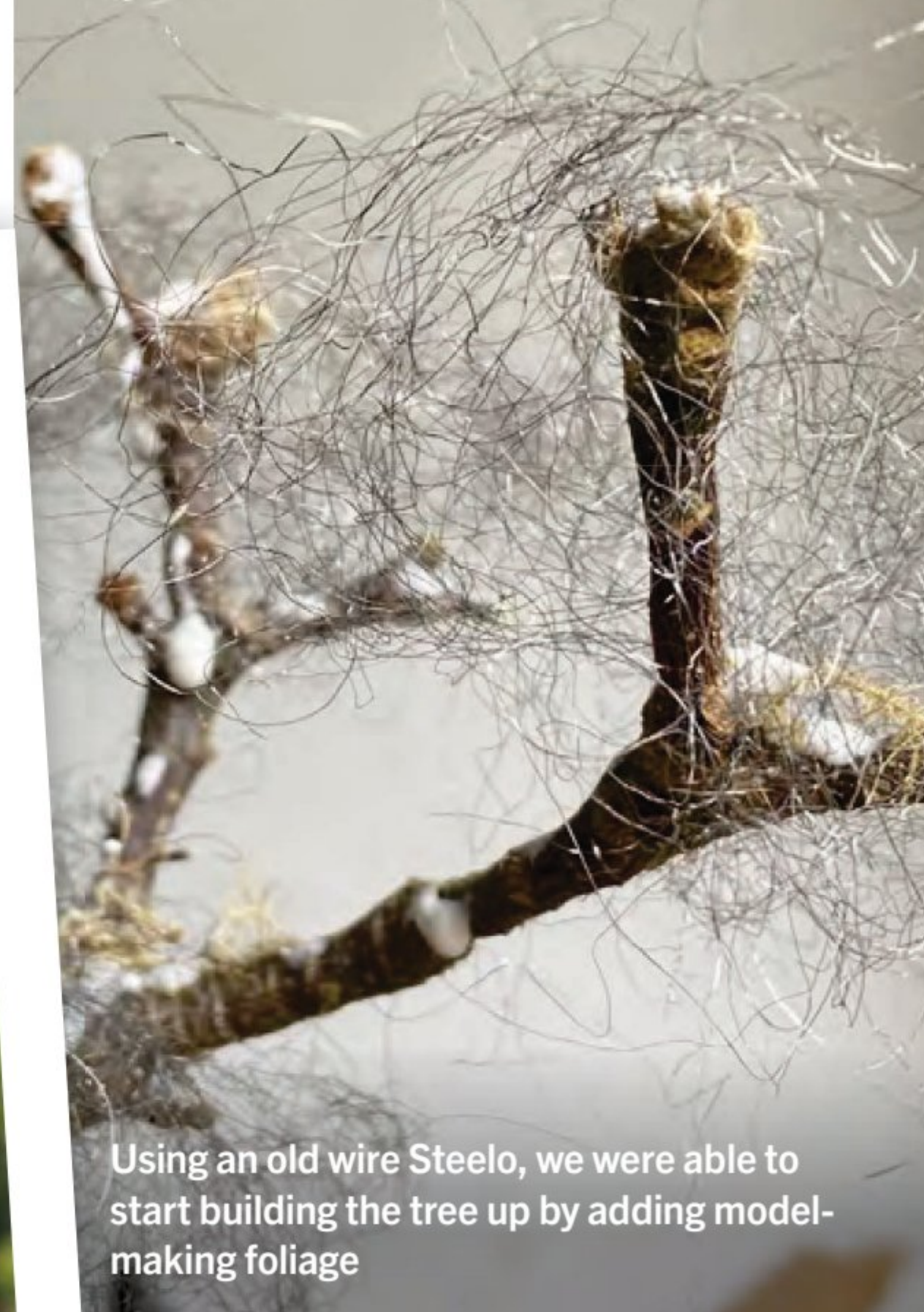
The chill-out zone. A circular seat (fully lit from underneath), a purpose-built skateboard rack (back lit), and a back rail – some of this detail can be seen on the opening page. The finished tree is awaiting a garden at its base



Making the tree

A nicely shaped magnolia branch was sacrificed for our tree. It already had some nice moss growing on it, and from past experience I knew this moss would stay intact and look the same for years to come.

To add some structure to the tree, we broke apart a wire Steelo and glued it to the branches. We have some containers of foliage and greenery from a large slot-car track we have been making over the years, so Bella carefully dropped these over the tree, in various degrees of sizes and colour, after spraying the tree branches with spray glue periodically so that the foliage would stick. What fun!



Using an old wire Steelo, we were able to start building the tree up by adding model-making foliage



The stadium light was constructed using some pieces from a discarded doll tent, some thimbles, and some solid card for the frame



Skating time!

Now that everything is in place, it's time to give it a test run.

The whole idea is that you can move around the park (generally clockwise, if you are right-handed) and do tricks as you go. The most common and easy-to-learn trick is the 'ollie'. The same rule applies in real skating.

With fingerboarding, the rear of the board is pushed down with your middle finger and simultaneously your index finger counters the sudden rise in the board and levels it out on the front of the board. The board will jump into the air, with both your fingers controlling the jump. It's pretty cool when you get better at this while you are moving around the park.

The stream is a great test of your skills as you approach it and ollie over it, landing safely on the other side. From there, the ollie will help you gain air for a multitude of other moves, including a tail grind down the stair rail, tail stall on the wooden seat, and riding the pool with aials as part of the fast-flowing action. Another option is just to ride along and cruise. Great fun! ►

Reuse, recycle, repurpose

Every material used in this park (except the resin) started life as something else. The great thing about having an interest such as this, is that the materials you use are usually common household items that you are giving a second chance to and potentially saving from the skip.

This, in turn, encourages our kids

not only to be resourceful but to think creatively and see everyday objects in a different light. At the end of the day, this is meant to be fun (bit of a family motto), inexpensive, and a good way for the younger generation to learn how to use tools safely, gain some basic mathematical skills, and create cool stuff to keep them off those bloody gremlin screens!

The park is sturdy, easy for two people to move outside and designed to be used at a height suitable for my kids. The vertical railings are garden stakes, cut, filed at the top, and given a coat of varnish

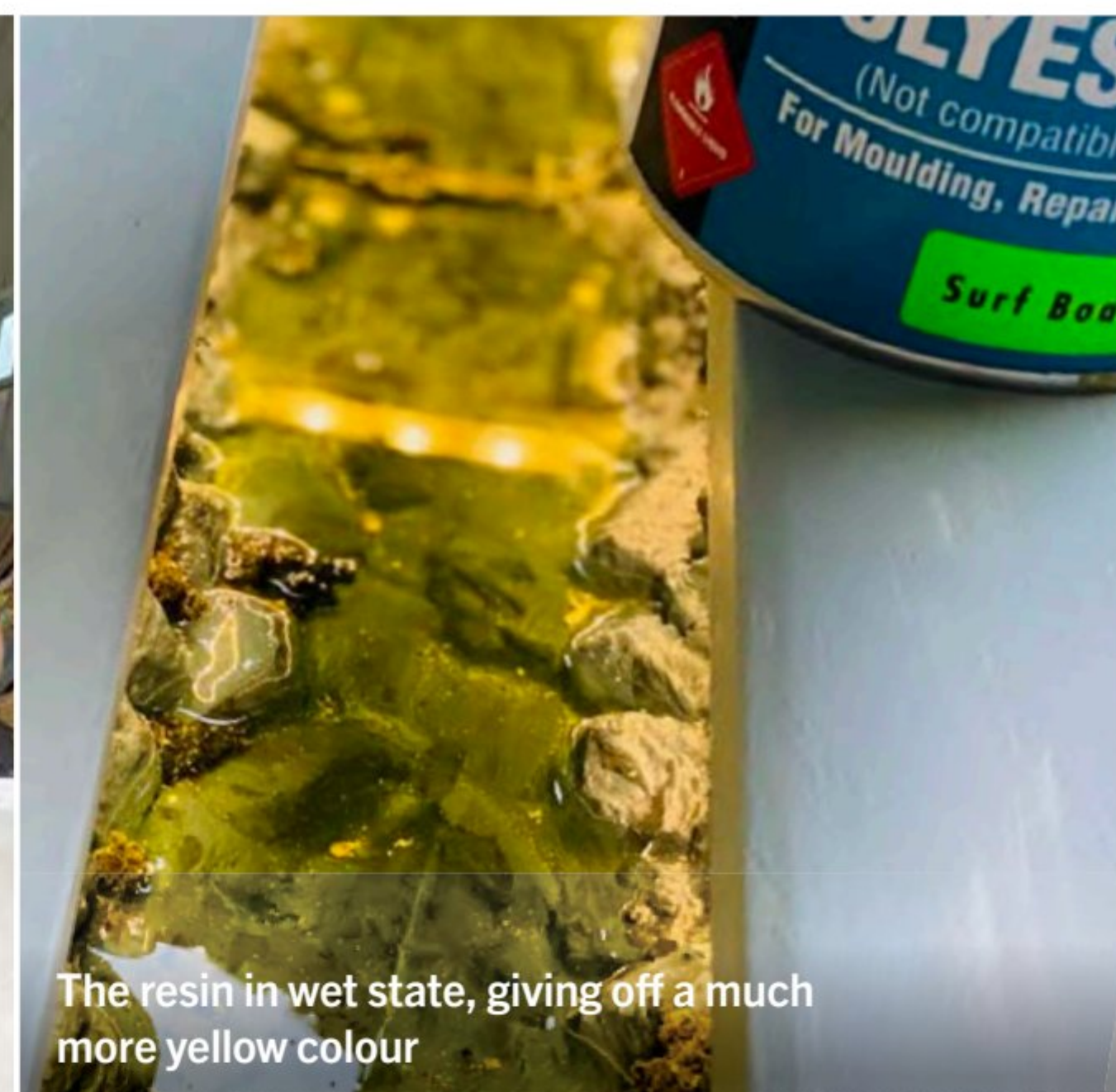




LED strip lights, held in place with bread ties. Rock wall complete and coated with some plaster of Paris



An old Resene test pot coming in handy



The resin in wet state, giving off a much more yellow colour



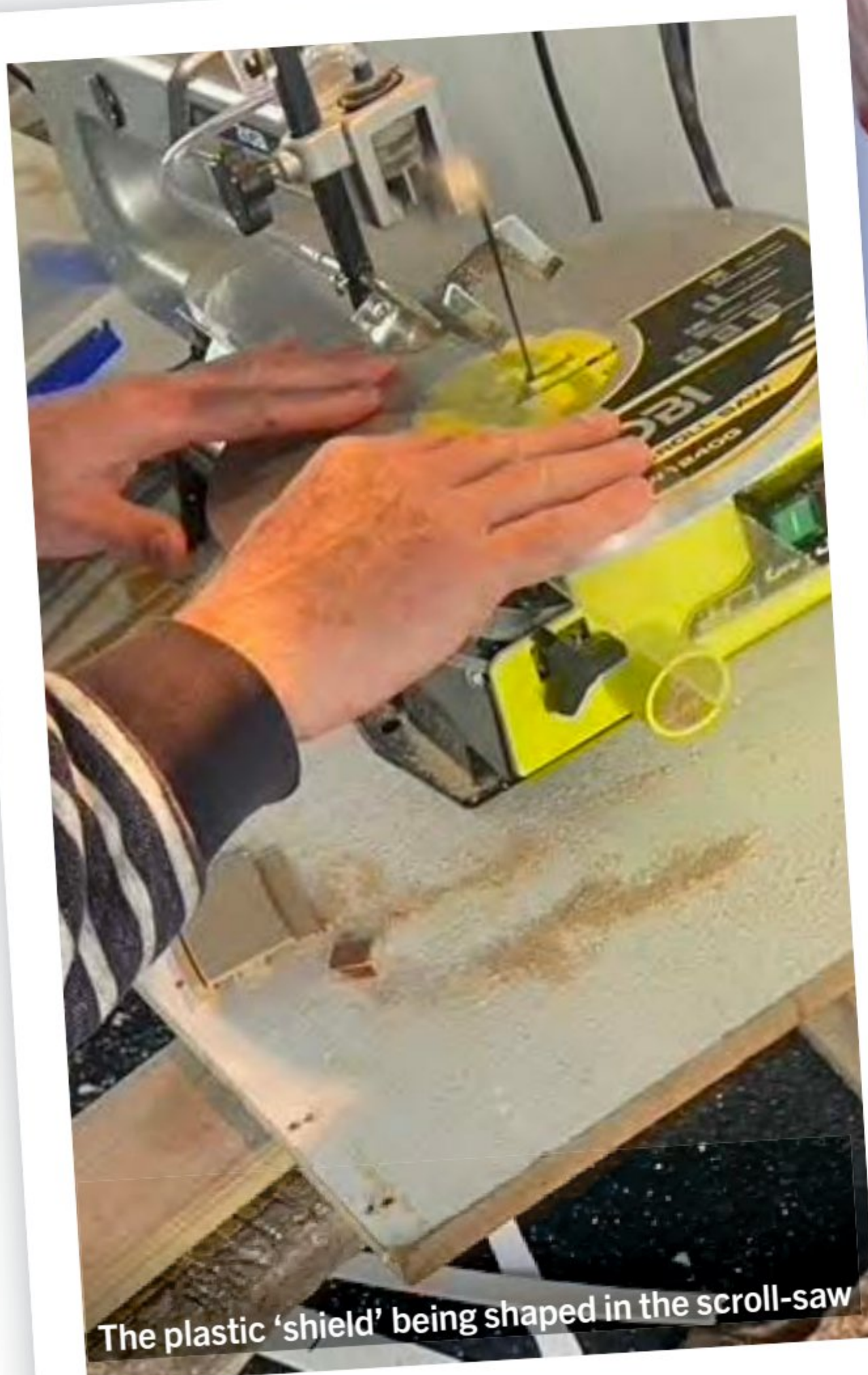
An aerial view of the stream shows some nice detail

Making the stream

We wondered what we could do with some PVC pipe that was lying around. Bella suggested a stream that went through the park, then Jamie piped up, "Yes, then you would have to jump over it to continue skating around the park." Game on! I placed it in the vice and cut off a section with the jigsaw, then belt-sanded the edges.

We wanted this to be well lit, so added an LED light strip around the outside. The rest of the 2m light strip wraps around the seating area (rounded end of the skatepark) and then up the skateboard storage rack.

We cut up some small rock shapes from some packaging foam and glued them to the inside of the pipe. Some foraging around the garden added some realistic foliage around the crevices of our newly formed rock wall. Once painted, nearly a litre of resin was poured over them. A piece of plastic sheet was glued at the end of the stream to stop the spill of resin. It all worked out well despite a nervous few minutes as the resin hardened.



The plastic 'shield' being shaped in the scroll-saw



Spot the eel – Jamie sacrificed a Lego snake



Making the skateboards

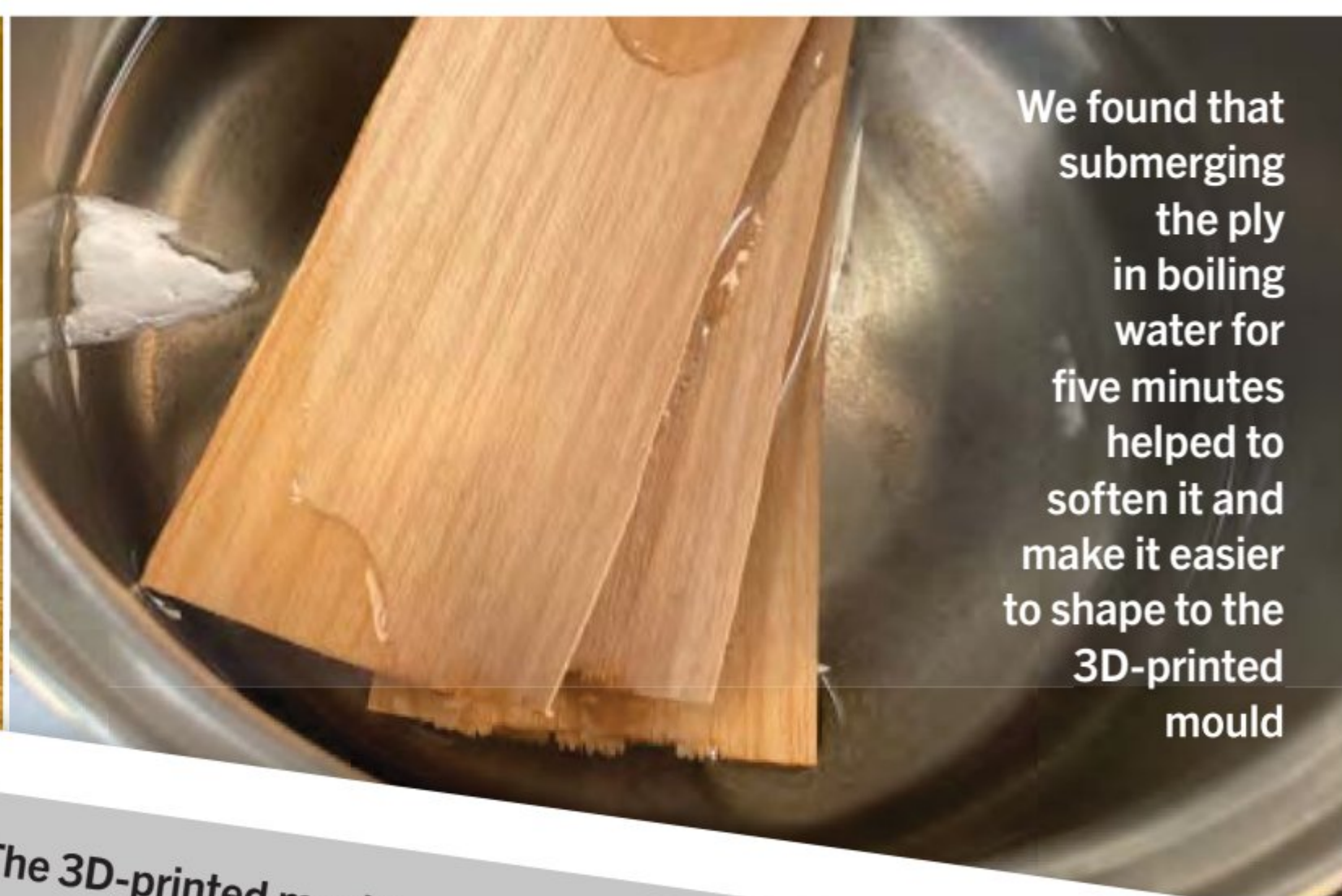
I vividly remember making mini skateboards in the late '80s with school friends. We would use the axle and wheel/tyre combo out of 1/64-scale slot cars and the decks from glued cardboard sheets. Fast forward 35 years, and here I am doing it all over again. The concept is the same; however, the process is entirely different. We sourced the laminate timber from a few different places, such as 0.7mm ply offcuts from Plytech. Another source was 0.3mm bamboo serving dishes from Kmart or a \$2 shop. We mixed them up a bit so that the nicer plywood went on the top and bottom of the boards. The bamboo sheets were sandwiched in the middle. We used six or seven sheets, sandwiched on top of each other with a coat of wood glue between each layer. To get the best strength, we ran the grain of the wood alternatively between each layer. We used a 3D-printed mould sourced off Trade Me. The flat sheets of veneer were placed in the mould then in a vice for two days. A rather brutal attack with the belt sander around the edges (we started off with about seven non-perfect rectangle shapes) gave it some shape rather quickly, then the kids finessed the shape with some hand-held sandpaper.



Seven to eight sheets of ply/bamboo go into each board



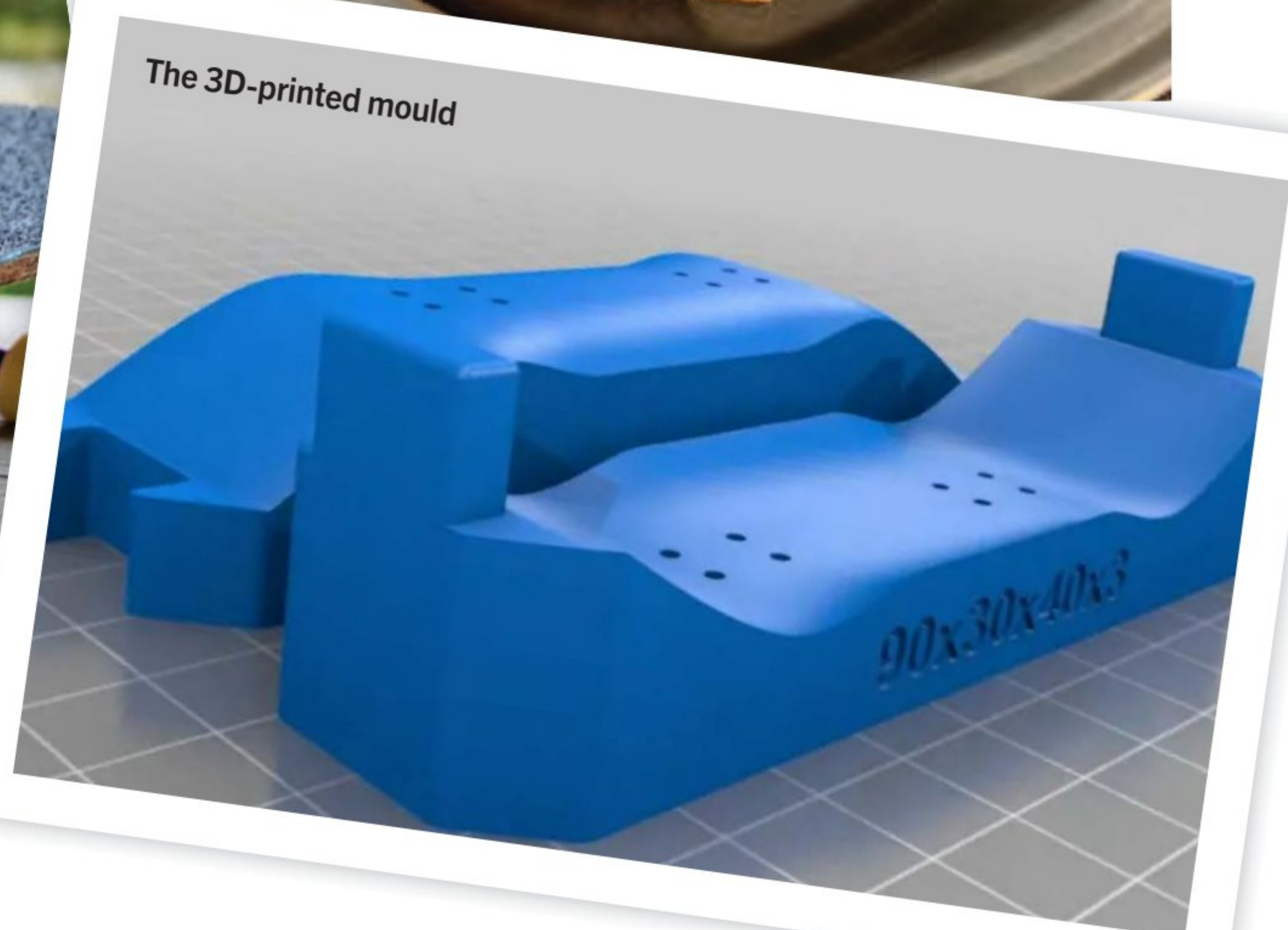
We purchased a 3D-printed mould so that we could make our own skateboard decks. Six to seven layers of veneer ply are glued together and left in a vice for two days – voilà!



We found that submerging the ply in boiling water for five minutes helped to soften it and make it easier to shape to the 3D-printed mould



Sandpaper (180 grit) is glued to the top surface for grip (just like the real thing)



The 3D-printed mould

Correct scale is everything

The world of fingerboarding is one-twelfth scale.

The most popular off-the-shelf product for these fingerboards is Tech Deck, which has been producing one-twelfth boards, ramps, and mini parks since the late 1990s. The wheels and 'trucks' you see on the left-hand page have been purchased and repurposed for our own handmade skateboard decks.

As anyone who has worked in miniature land knows, the correct and consistent use of the scale you are using is everything. One-twelfth is actually a really large scale. Even our large slot-car track, which is currently in the build, is a generous size at 1/32, so, if we had the

time, we could add some incredible detail to a build like this.

What now?

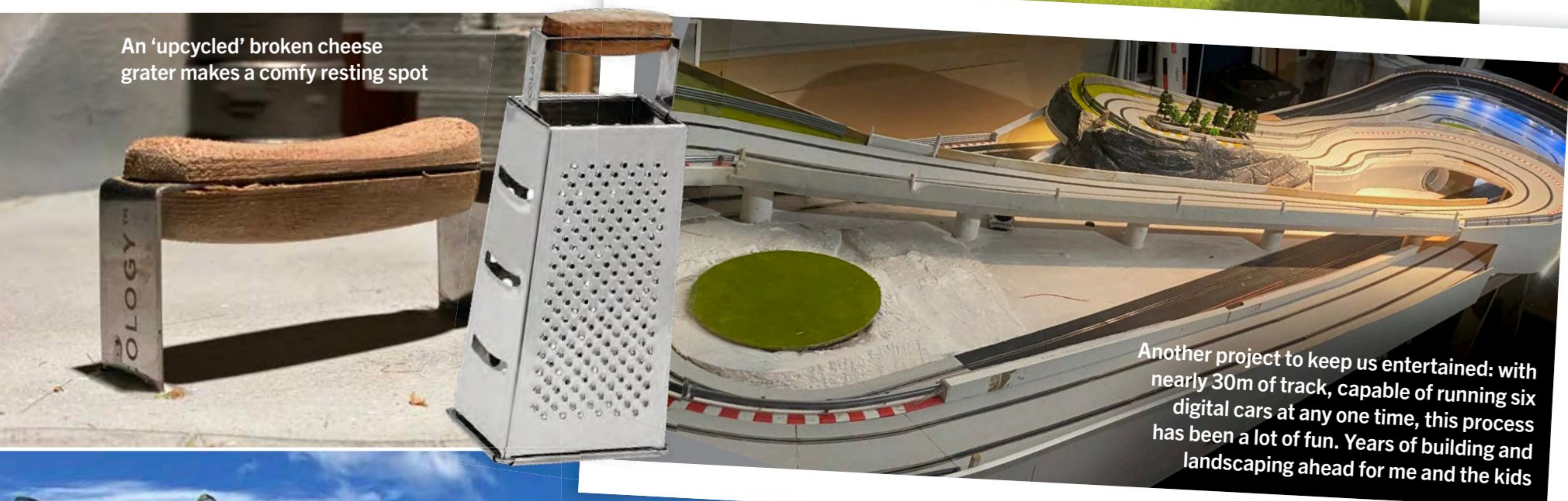
Now that the skatepark has been completed and hoisted up to the ceiling of the garage to allow room for a game of table tennis, we get to decide what to make next.

We did get stuck into building a replica of our own house, which has been fun. The model includes a fully functioning ranch-slider door made from the leftover parts of a piece of electrical trunking.

We have also been kept busy designing and building that 1/32-scale slot-car track – at 4.4m long – which we intend to landscape over the next few years. ►

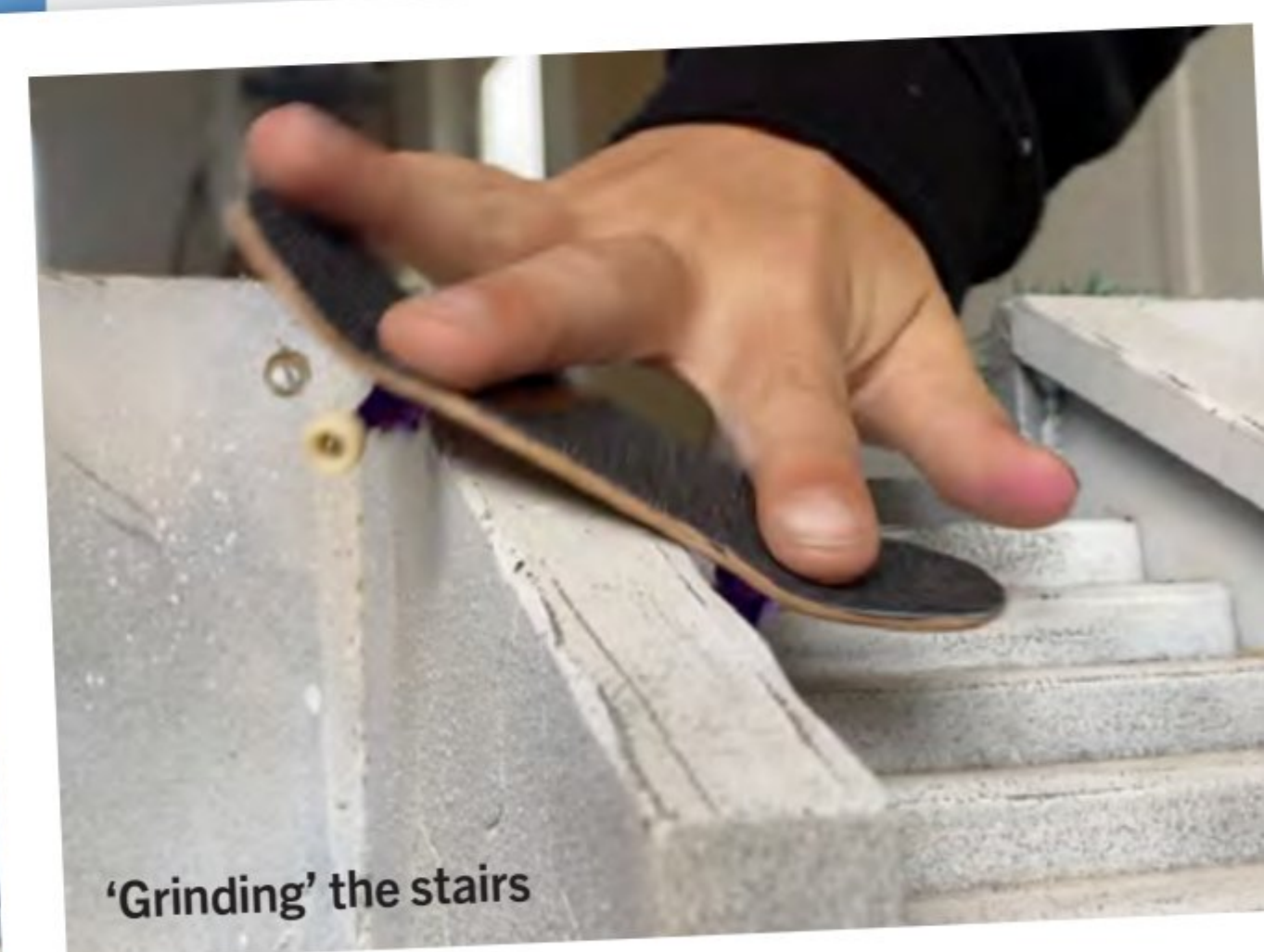


An 'upcycled' broken cheese grater makes a comfy resting spot

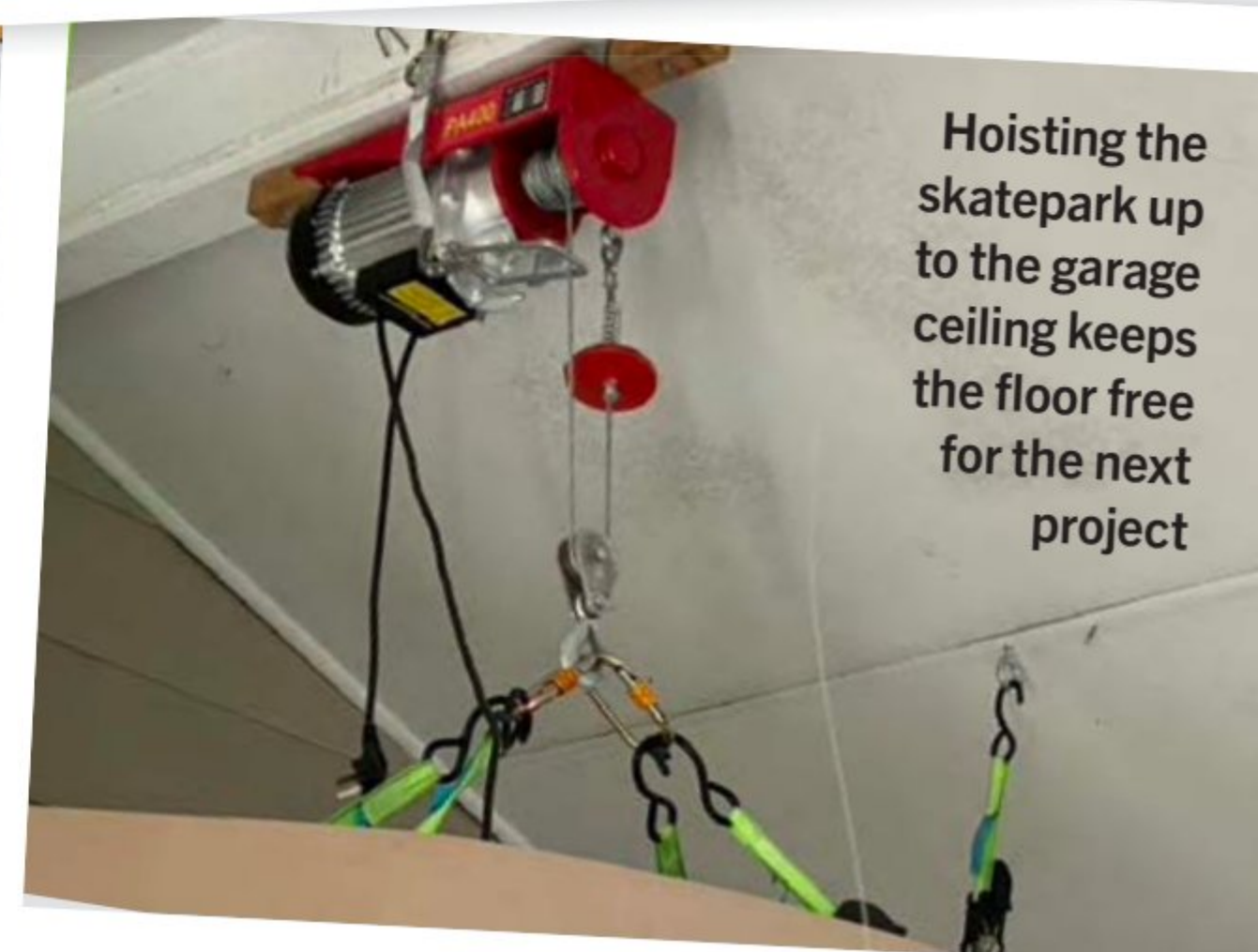


Another project to keep us entertained: with nearly 30m of track, capable of running six digital cars at any one time, this process has been a lot of fun. Years of building and landscaping ahead for me and the kids

The skate areas were painted using some old pots from under the house; the pool got some sandpaper treatment to give it a worn and weathered look



'Grinding' the stairs



Hoisting the skatepark up to the garage ceiling keeps the floor free for the next project

Hooked on miniatures

The builds mentioned here are the first we have done, so experience is not necessary. Some basic tools, a bit of imagination, and you're away.

My kids have well and truly caught the miniature bug, and I'm looking forward to seeing what they decide to create next.

Working on a project with your children (or grandchildren) can be very rewarding – the joy of creating something together, as well as the non-classroom educational opportunities it offers. I hope this isn't the last time we can share a build on these pages. 📁

Tools required for miniature projects

- Jigsaw
- Scroll-saw
- Drop saw
- Belt sander
- Wood glue
- Liquid nails
- Vice
- Caulking gun
- Clamps/Tape
- Drill
- Hammer
- Paint brushes/roller



A good example of how the middle finger and index finger control the board: here, Jamie has come off his middle finger (left) to catch and straighten up the board with his index finger



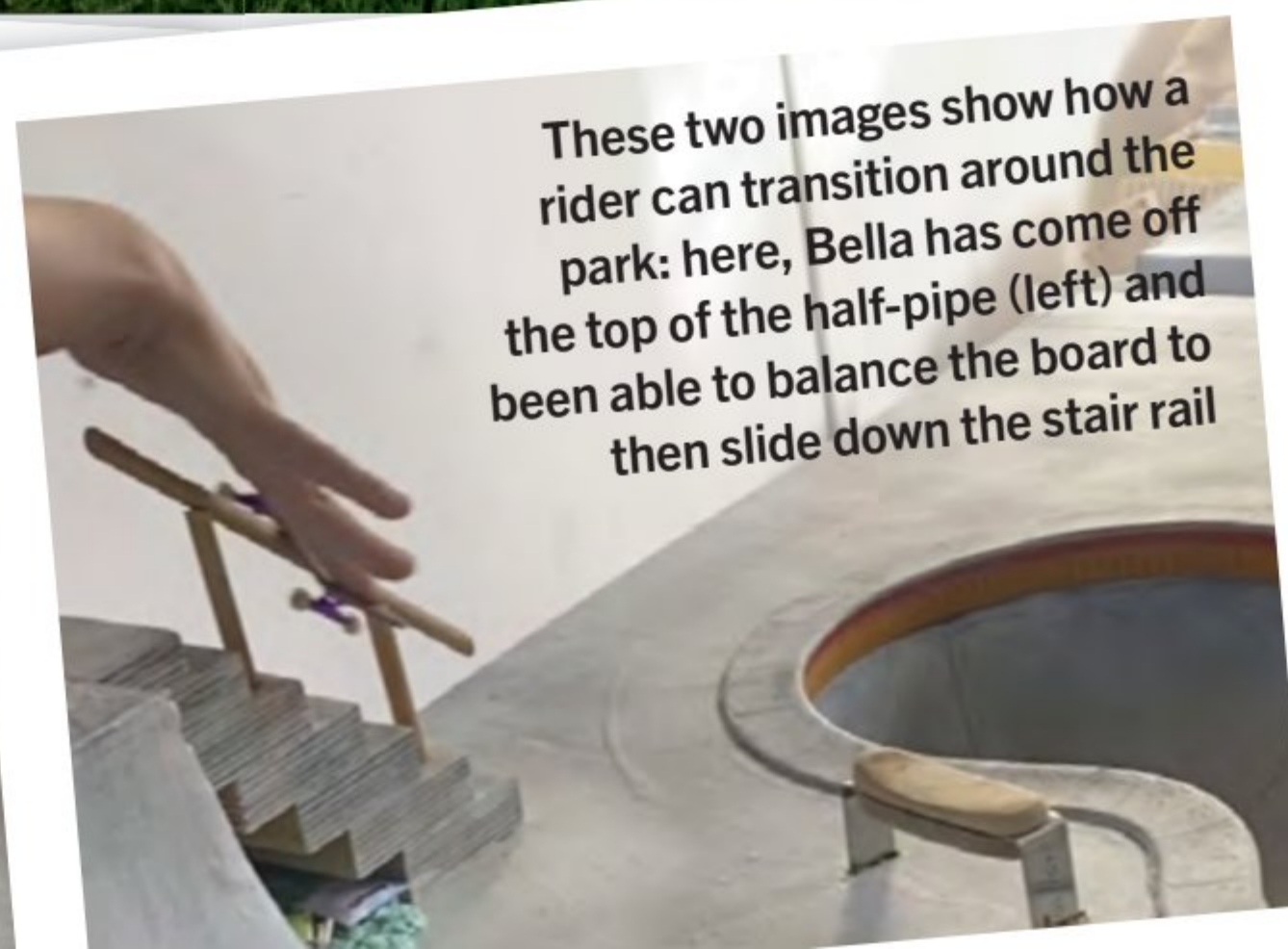
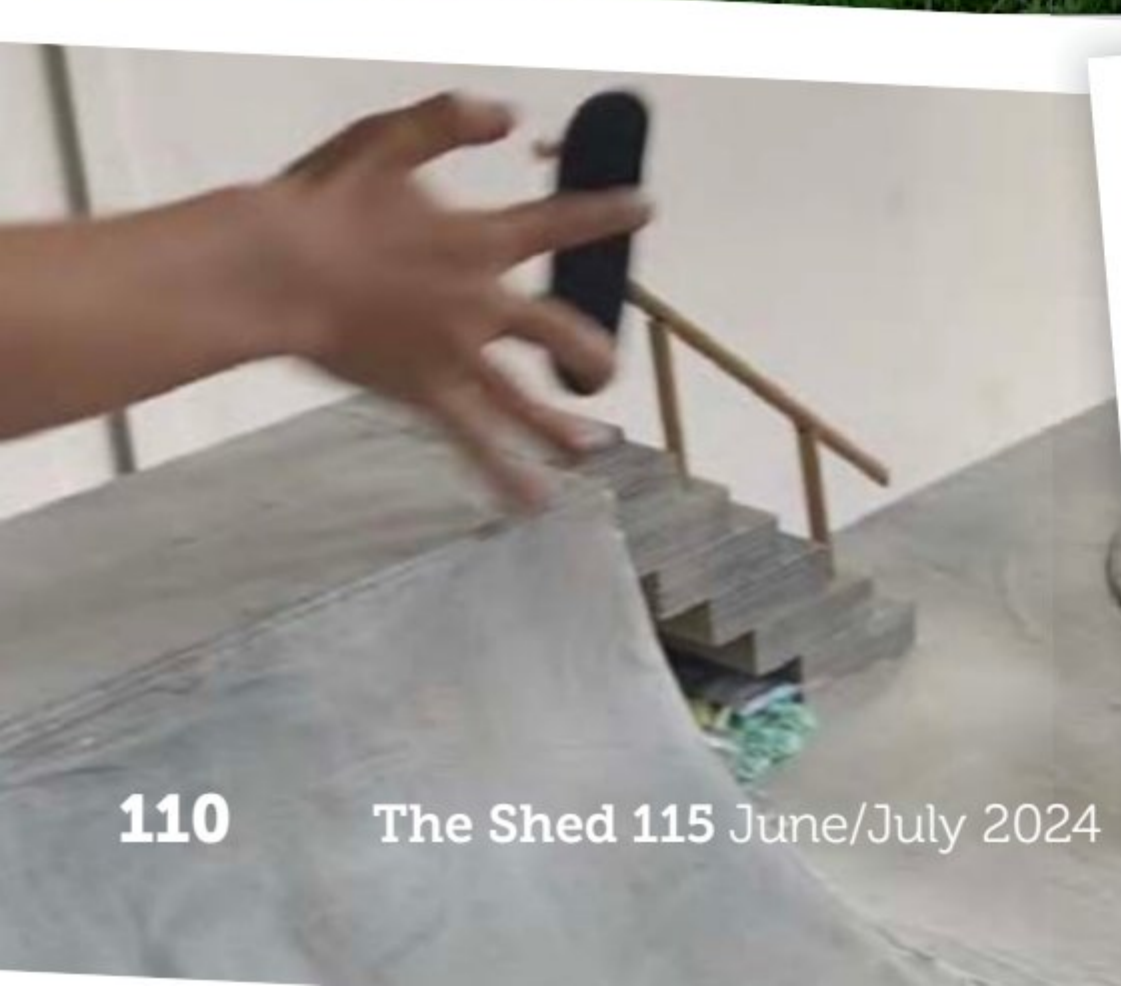
The tiles are individually cut, painted, and glued business cards. After the second layer of grey spray paint goes on, a thin layer of salt is sprinkled over and then rubbed off when dry to create a speckled finish



A couple of pre-painted legs were purchased from Bunnings for \$35 each – by far the most expensive part of the build



Bella has caught the miniature bug and has built some truly wonderful things. Here is the 1/32-scale six-storey apartment building that she created using tennis ball cans as the structure



These two images show how a rider can transition around the park: here, Bella has come off the top of the half-pipe (left) and been able to balance the board to then slide down the stair rail



As we want to turn this hobby into a top-10 global brand one day – ha ha! – we thought we had better have a logo, so Unco was chosen. 'Unco' is short for 'uncoordinated'

WAGENER *Pipi*

MEETING THE GROWING NEEDS
OF THE TINY HOME MARKET

**NEW
TO THE
MARKET**



Features include :

- 4kw room heat
- 5mm steel
- Brick lined firebox
- Stovetop cooking
- Log base storage
- High temp paint finish



5 Allen Bell Drive, Kaitia (09) 408 2469
www.wagnerstoves.co.nz



**Professional
CAD Systems**

Powerful, yet easy-to-learn and use.
Affordable 3D CAD software.

Expert V27

\$4231.00

Pro V27

\$2388.00

Atom3D V27

\$459.00

New Version 28 due soon.

Solid Parts

Sheetmetal Parts

Assemblies

BOM

Drawings

Buy It and Own It



30-day free trial available

**ALIBRE SUPPORTS MODEL
ENGINEERING CLUBS AND
TRAINING INSTITUTIONS.
MEMBERS, TUTORS AND
STUDENTS, CONTACT US.**

NZ May '24, Prices - GST not incl

bayCAD
services ltd

enquiries@baycad.biz
<https://www.baycad.biz>
NZ 0274847464
AU 61 274847464

Tungsten Carbide Routers

for more
than a bit
better cut



0800 LINBIDE
546243

linbide.com

LINBIDE

The right component for your project



Plastic fixings, fastenings & hardware
Plastic protection caps & plugs
Electronic components & enclosures
Industrial operating elements
Toggle clamps

9000 component lines, 7.5 million items in stock

www.hiq.co.nz

Hi-Q Electronics Limited
sales@hiq.co.nz
09 415 3333

Hi-Q
components

A MASTER SMITH IN THE MAKING

The skills of young Mack, the knife-maker,
already see him ready to vanquish the best

*By Mark Bellringer
Photographs: Mark Bellringer*

Mack in his happy
place working with red-
hot steel at the anvil



Mack holding one of his chef knives

YouTube, the school of YouTube – “It’s almost unfair,” says Grumpa (Graeme) about his grandson, Mack, as he tells of the process required to make a Damascus-style knife.

This is a guy who is 14 – yes, 14 years old – who has been making knives for two years, and is beating some of the top knife-makers in the country at their own game. In 2023, he entered The Auckland Blade Show awards and came away with Best Damascus and Best Newcomer.

Mack is an out-there, friendly guy

who seems to be in a hurry – in a hurry to become one of the best knife-makers in New Zealand. His knowledge of the process seems to be encyclopaedic, even though he fully admits that he has a lot to learn.

What got Mack started?

So, how did this all come about?

Well, Grumpa built a shed ...

He tells us, “I started in Stratford. Grew up there on a farm, and then went to Piopio. There for 30 years, mainly shoeing horses. I got into engineering

and built a few cow sheds, and we came down here about 15 years ago. There was nothing here, so we built it all from scratch,” he says.

“Me and Scott [Mack’s father] have always mucked around with cars, jet boats, and one thing and another – all the boys have their own interests.”

The family has developed a variety of skills in the shed.

Scott says, “I took over one of the sheds. I had rally cars; now I’m just a fixer. I have to fix everything that makes stuff – that’s my role.” He laughs. ►



Quenching the blade in quench oil



Changing over the belts on the linisher



Grumpa passing on some of his wisdom to Mack on how to improve the belt grinder that they made together

“They get shown how to do it, and told how to do it. Back in the day, you had to try and learn it yourself”

That brings us to Mack: how did he get into knife-making? No one else in the family seemed to make them.

“Grumpa mucked around with it,” says Mack, “and he had some blanks made up. I’d always been interested in knives. I’ve made a hammer and, at the moment, I’m making a hoof knife for carving out horses’ feet. I wanna get into the blacksmithing side of it. I make all my own Damascus folding steel and sometimes steel and copper together.”

The YouTube generation

When did Mack start making knives?

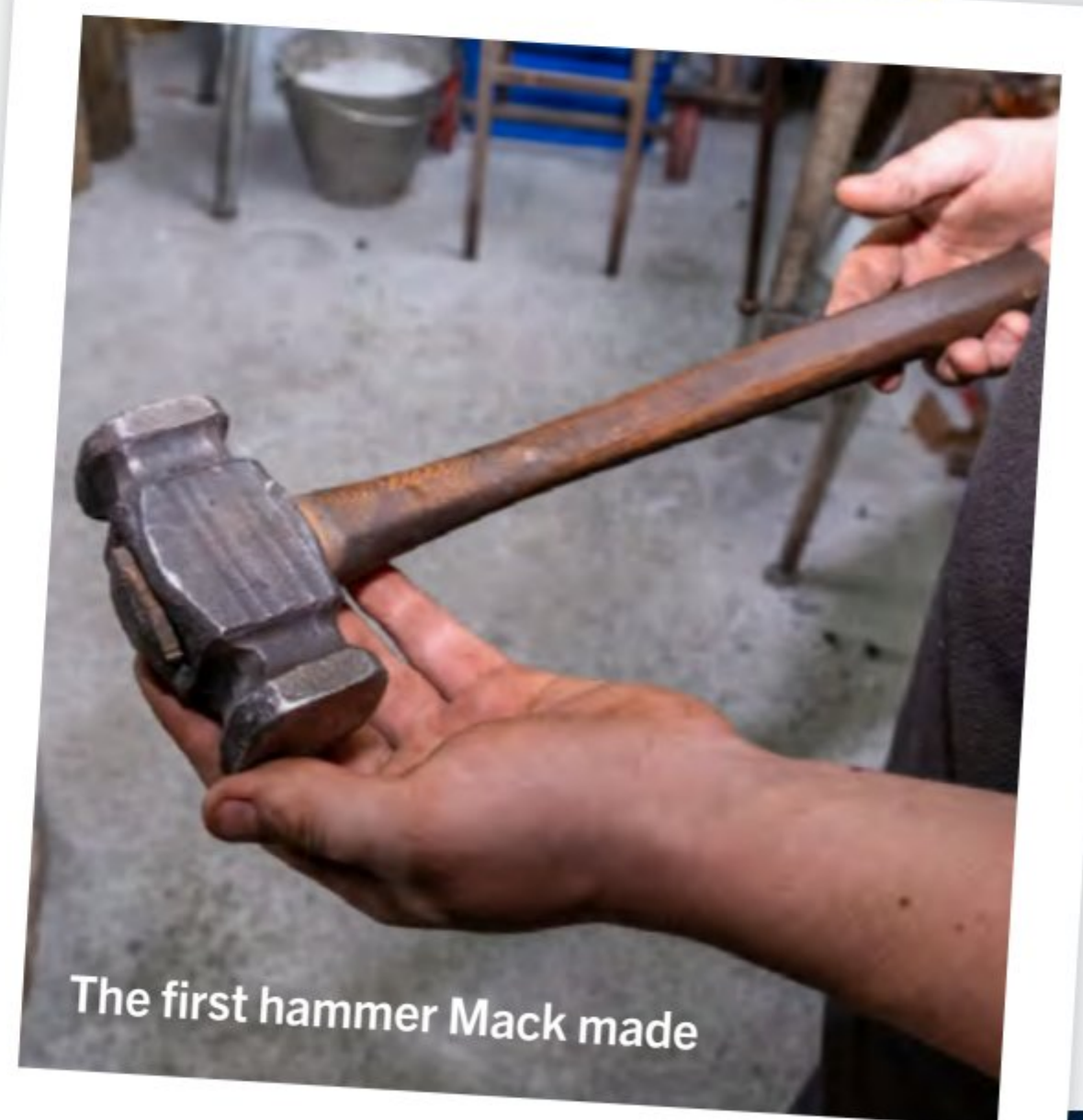
“Two years ago,” he says. “I get a lot of info from YouTube – and Grumpa, social media, and all of that, and talking to other makers.”

“The university of YouTube,” says Scott.

“They’ve got it easy, really” says Graeme. “They get shown how to do it, and told how to do it. Back in the day, you had to try and learn it yourself.”

He says this with a smile on his face, and you can tell he’s really proud of his 14-year-old grandson.

While YouTube seems to be a huge source of knowledge for knife-makers, Instagram and Facebook appear to be clamping down. Mack has his own Facebook page (@MJKnives) to try to promote his work, but both Scott and Mack have noticed a real sensitivity to knives on social media recently. They are not able to share posts, and are being ‘shadow banned’ – only followers can receive post information. Facebook is seeing knife-making as the promotion of weapon making.



The first hammer Mack made

Hand sanding a copper Damascus blade



Does Mack sell his knives?

“Yes. I went to The Auckland Blade Show last year and I won Best Damascus, and Best Newcomer for a copper Damascus,” he says.

The knife was judged on the look of the blade, the fit and finish, and there were 52 entries. That made a few sit up and take notice – a 14-year-old in his first show taking out the best New Zealand knife-makers. That must have ruffled a few feathers. “Yes, it did,” smiles Mack.

“The winning knife was copper Damascus, Damascus cladding, two layers of copper, and a core. You can’t get it too hot to start with – just hot

enough to work with or it will melt; you draw it out.

“Because it’s a 1084 core, it goes black and you get a line of copper when you do the bevel; it exposes a nice squiggly line,” Mack explains.

The person who bought the knife off Mack is a teacher and fellow knife-maker. He believes that Mack has to get his name out, as he has amazing knowledge for his age. He intends to display it in his classroom and say, “A 14-year-old made that.” He believes that it will be a great inspiration for his young students. ►

Mack pictured at the 2023 Auckland Blade Show where he was a first-time prize-winner

Welding a handle onto a piece of steel



Talking about scale



Pulling the knife out of oil

“He believes that Mack has to get his name out, as he has amazing knowledge for his age”

The process

Where does Mack start?

“For my Damascus, I have two types of steel; one is 1084 (high carbon steel) and [the other is] 15N20, which has different nickel content.

“When etched in ferric chloride, the 1084 darkens up and etches into the steel; the 15N20 is left untouched – so that gives you a contrast.

“Everyone likes Damascus,” he says smiling.

To create a knife, Mack cuts up a number of 1084 and 15N20 pieces and stacks them. Alternating, he works with up to 20 layers. He will stack the first 20 layers and draw it out by

heating, hammering, and brushing manually and then using a combination of the power hammer and press.

“I cut it up into bits, alternate it, stack it, and forge it,” he says.

To forge it, he welds the sides of the stack together and adds a bit of round bar to one end so that he has something to hold onto while working with it in the forge and press.

“[You get] it as hot as you can, then, just before it melts, you use borax while working with it in the press, [and that] seeps into the layers.”

Depending on how many layers Mack wants for the finished knife, he could draw the billet out, cut it in half, and



Heating some blade steel

combine it to have 40 layers.

"I don't use the power hammer as much as the press," he says. "The power hammer, especially this power hammer, is good for a small billet, but, if you have a really big billet, it doesn't draw it out very well."

Learning new Damascus techniques

Brushing it and slowly forge-welding the steel, Mack draws it out, and either stacks it up or twists it – basically, he can do anything with it.

"You can do anything with Damascus; people are always learning new things with it; I'm always learning new things with it," he says.

Mack has also tried making knives with plain carbon steel, such as leaf springs: "When I first started, I used saw blades and/or leaf springs out of cars to forge a blade. You just trace your knife, cut it out, drill your holes, and grind it up – but I'm into Damascus at the moment.

"Heating it up takes about 20 minutes, and then I apply very soft presses just to set it. Only then do you start drawing it out. The next heating you do a bit more, and a bit more.

"For a difficult pattern, the process can take maybe 20 hours, while just a series of straight layers folded and folded would be maybe 10 hours. It's an easier pattern to do." ►

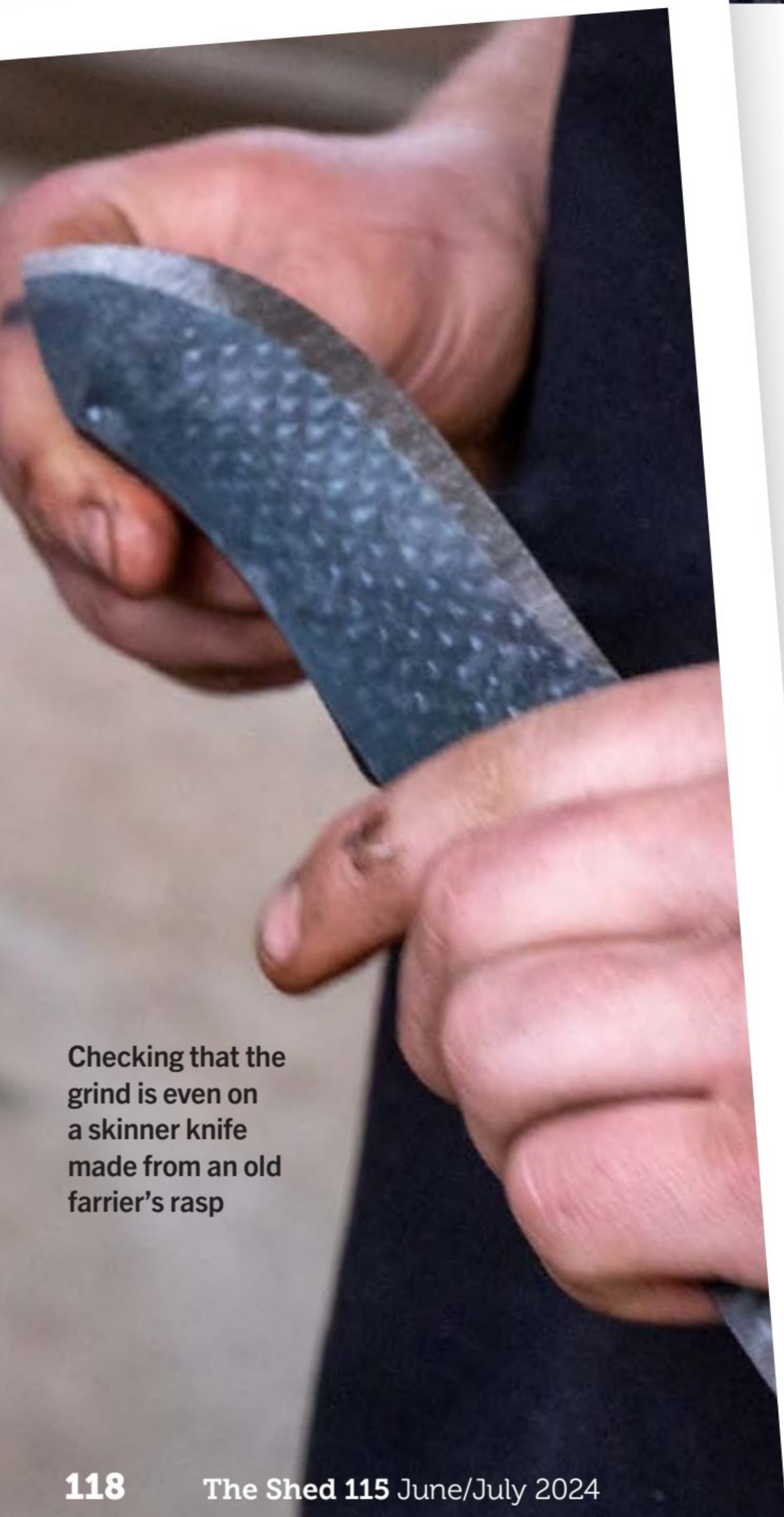
"You can do anything with Damascus; people are always learning new things with it; I'm always learning new things with it"

The Jones boys with a few of the toys made in the shed





Using the press to flatten the steel



Checking that the grind is even on a skinner knife made from an old farrier's rasp

“This takes around a day, heating and cooling two or three times to ‘relax’ the steel”

Mack always has a pattern in mind when drawing it out. It can be just a random pattern, or when, say, he is adding copper, he can visualise, within reason, what it will look like.

One of his first knives ended up being worked up to produce 200 layers, starting with 18 pieces of metal and then folding and folding to produce around 200. The process of drawing it out, chopping, re-stacking, and drawing out again is repeated again and again. His first knife was made from files and bandsaw blades, which still gave him a contrast, just from high carbon steel. However, it's Damascus that has captured his imagination nowadays.

You can fail with Damascus

The next part of the process is forming a tip by hammering it out.

“I don't forge it too close to shape,” he says. “I forge it roughly and then grind it to final shape.”

Before reaching its final shape, the thickness may reach 6mm.

“I then grind it down to 3mm, taking all the scale off. For a chef knife, you would want it around three to four mil.,” says Mack. “It's really easy to get faults in it; I have failed a lot with Damascus. Then you simply have to start again, as there is no way to really fix it.”

However, Mack showed us one that he is making for a farrier.

“It had a lot of cracks. I ground some of them out and folded it in half. I thought, *Well, what have I got to lose*, and I hammered it out, twisted it, and then it actually did work. I was really surprised. The lesson was that you can fix it sometimes – sometimes you get lucky,” he says.

The Shed project

The design for a belt grinder that Mack uses came from an old copy of *The Shed*. Grumpa and Mack made it from bits and bobs from around the shed. They only had to buy bearings.

Recently, it's been rebuilt with a new motor, new rollers, new driveshaft, and a smaller belt. It now runs a 72-inch belt along with larger older belts.



Cooling the blade off



Grinding

Next is a grinding stage.

Mack marks out the shape; marking a centre line, he grinds to the line, leaving it fairly thick.

"I then heat-treat it, going through normalising cycles. Because it has first been forged so much, the grain structure is really rough and you have to refine it; you have to 'calm the steel down'. So you will heat it up and then let it air cool, you put it into the vice and let it air cool, to refine the grain."

This takes around a day, heating and cooling two or three times to 'relax' the steel.

Heat-treating

After the steel has relaxed, the next step is heat-treating.

"A lot of knife-makers have an electric kiln so they can get the exact temperature," Mack explains. "I don't have that at the moment; I use a gas forge. It's not ideal but it's what I have to work with."

"I then quench it in quench oil. You can use water, but it cools it too fast and you can get cracks. I warm the oil first with a piece of round bar, then, once the knife is around 1500 degrees, I quench it."

How does he know it's up to



Mack, Scott, Toby, Archie, and Graeme: three generations in one shed



Hours are spent hand sanding the knives using the homemade jig



“If I don’t use a clamp and it twists, I have about a minute to straighten it as it’s still hot”

temperature? Well, once the knife is up to temperature, it becomes non-magnetic, so he uses a magnet to test it, then reheats it to the same colour and then quenches it in the oil.

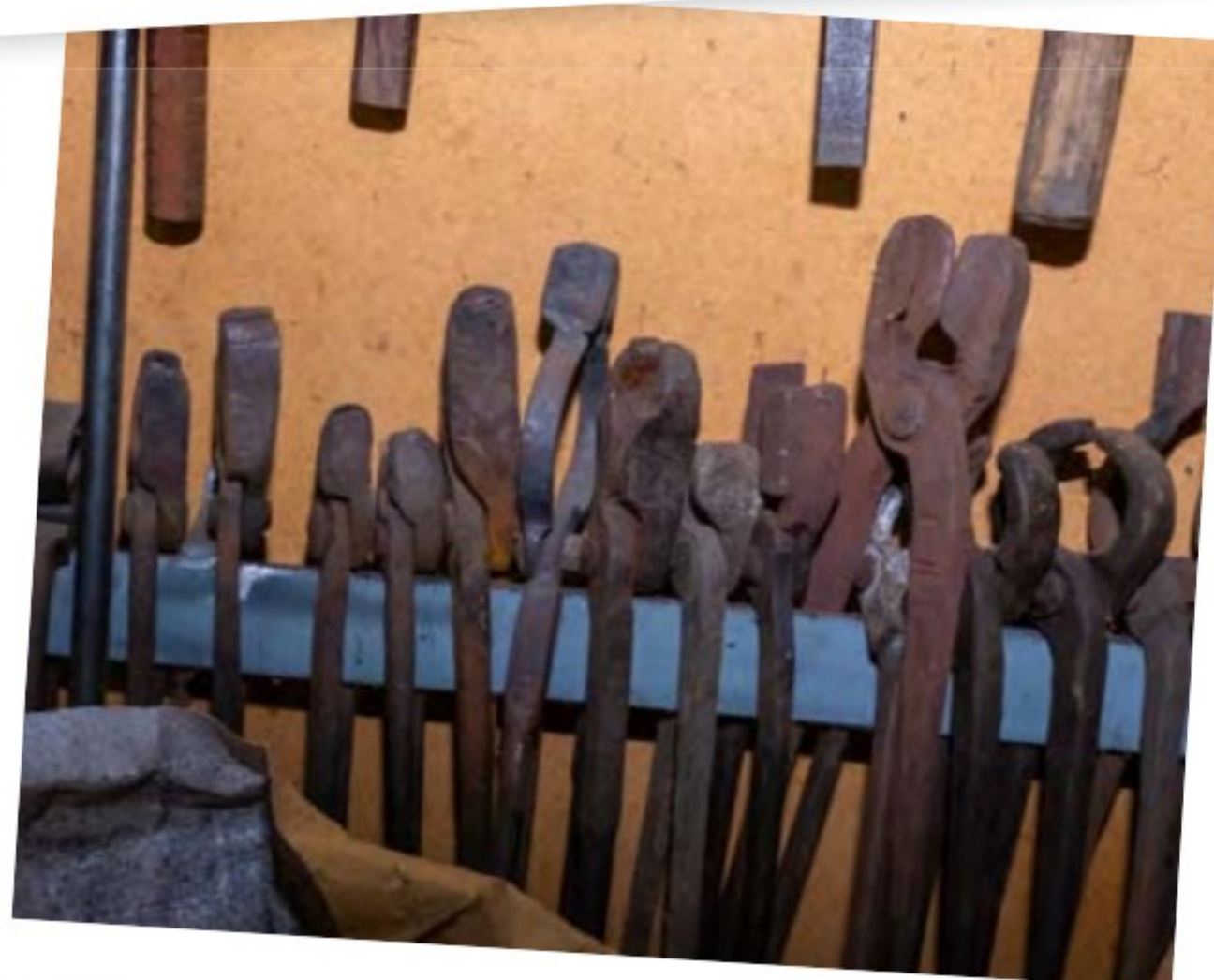
“For some of my blades, I use clamps to hold it straight,” he says. “If you have more material ground off one side than the other, it will twist.

“If I don’t use a clamp and it twists, I have about a minute to straighten it as it’s still hot. From there, it is put into a tempering cycle. So – I go down to

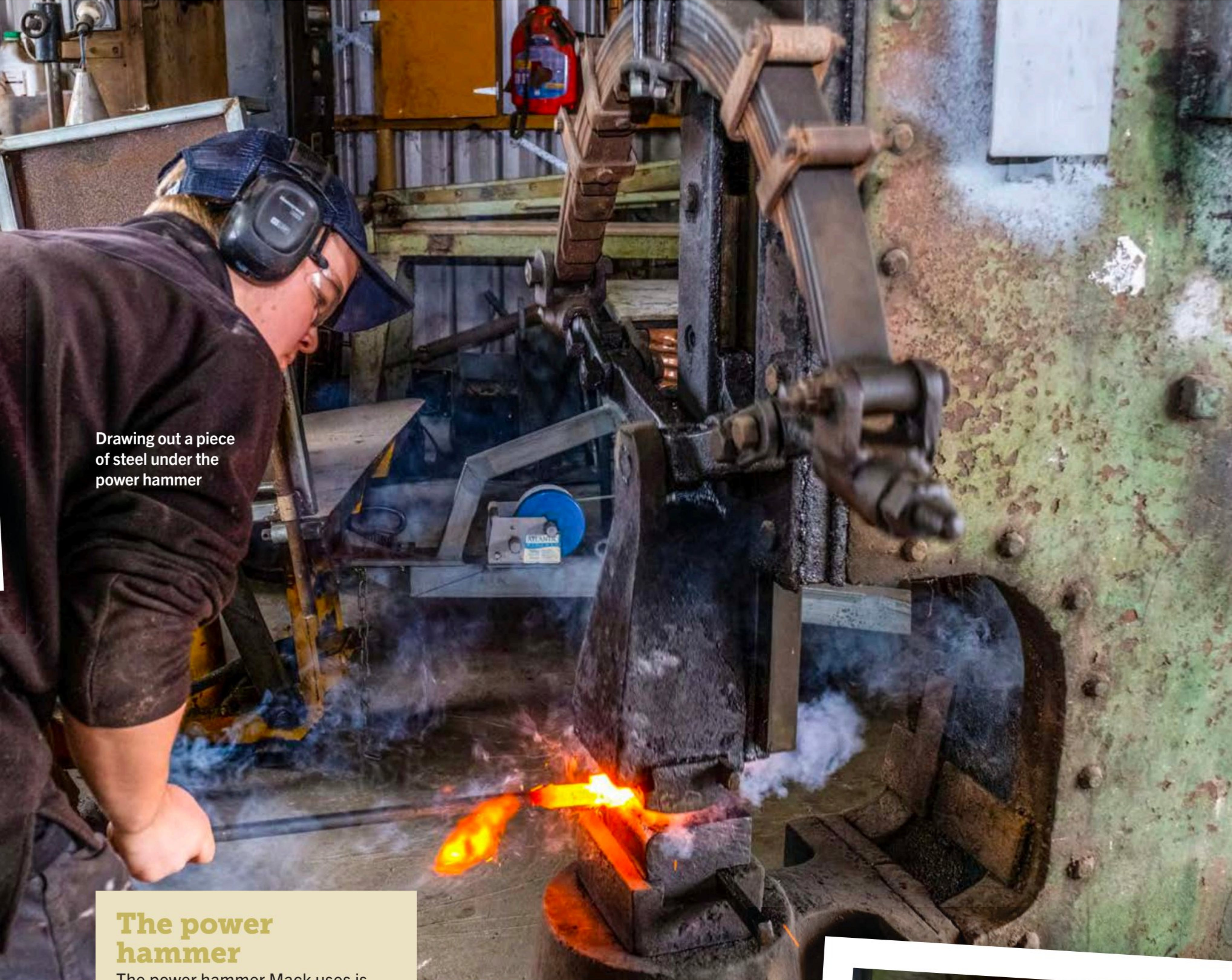
Mum’s oven [laughs]. I put it in there at 200 degrees for two hours twice – so that’s putting it in for two hours, taking it out, letting it cool, then putting it back in for two hours.

“When you quench it, it gets brittle, so, if you drop it, it could snap. By tempering it, you take some of that brittleness out, and it will actually hold a better edge.”

When Mack tempers it, he wants it soft enough not to chip but hard enough not to fail to hold an edge. The balance is all important.



Stoking the fire



Drawing out a piece of steel under the power hammer

The power hammer

The power hammer Mack uses is an old spring-maker's hammer that came from a spring-maker's yard sale in Taumarunui.

Graeme bought it for \$45 back in 1985. It is a Sydney-made hammer of unknown brand and year.

Future development

"I have recently signed up to the American Bladesmith Society. At the moment, I am an apprentice smith; it's a worldwide qualification," says Mack.

"Basically, it's a self-taught apprenticeship," Scott says. "You do a three-year apprenticeship and then, at the end of that three years, you make a knife, test it under a master smith, and if it's up to scratch they call you a journeyman knife-maker."

"There are various stages," chips in Mack. "There is the apprentice smith, journey smith, and then master smith. In three years, you test your knife; it has to cut through a piece of inch rope in

one slice, freehand. Then it has to chop through a 4x2 piece of wood twice and still be 'hair-popping sharp' – that is, it must still be able to shave hair. And then it has got to bend 90 degrees without breaking. Basically, you build a sacrificial knife. If you pass that, you go on with your journeyman test in which you make five knives of plain carbon steel, which are submitted to a panel of judges."

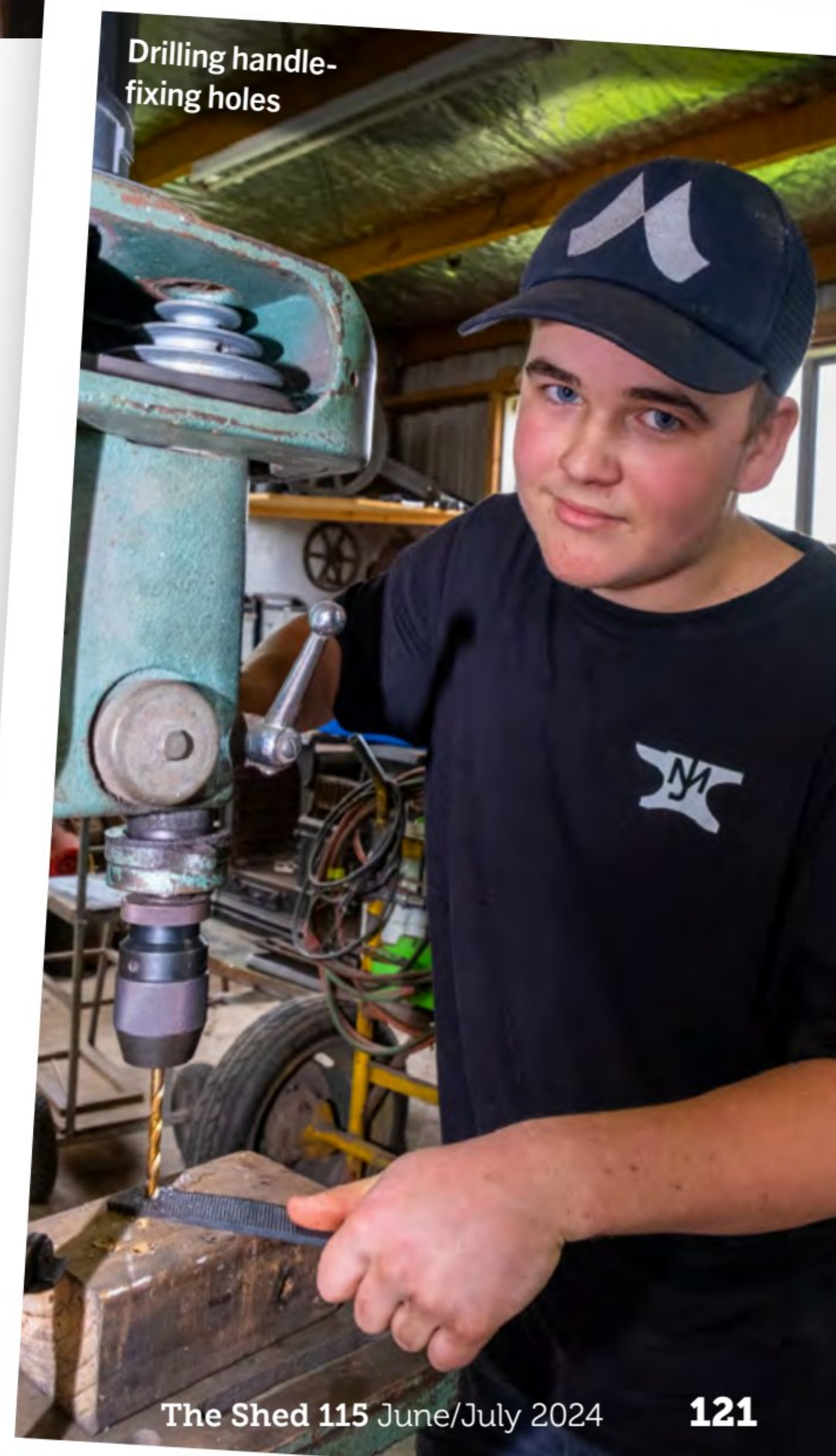
Mack's goal

Mack's goal is to become a full-time knife-maker; that's the dream.

Since lockdown, more people have got interested in knife-making; YouTube has had a lot to do with it. With time on their hands, people have studied the process online. However, you need the shed, and lots of equipment, and that's how Mack has been able to flourish – through Grumpa's shed.

Scott says, "Another of the main things Mack has on his side is time. We actually

Drilling handle-fixing holes



“The boys can follow their passion. To be able to see them grow over the past few years has been really cool”

home-school him. His mother looks after the schooling for the first half of the day, and he and his brother are free to do what they want for the rest of the day. Mack's into knives and Archie [Mack's brother] has a pile of chainsaws to work on and collect. Mack's other brother, Toby, is into racing lawn-mowers, and there are a few in the shed. The boys can follow their passion. To be able to see them grow over the past few years has been really cool.”

Mack is thinking of other things besides knives to which he can apply

his skills. He has made a hammer; he's thinking about axes; and he has been collaborating with a sword maker in Australia making Damascus fittings, such as a guard and pommel for his swords, which he is displaying in shows.

“A lot of the knives that sell nowadays are sold as art pieces,” says Scott.

“Collectors buy them as artworks, functional art – every piece is unique.”

Makers can spend weeks or months making a knife, and it can end up being worth thousands – but that is something for the future. 📦



Damascus and wootz steel

According to Wikipedia, the name ‘Damascus’ steel is contentious. It was used about 800–873 CE by Islamic scholars in describing forged steel for swords, which they called ‘Damascene’. However, there was no mention of the patterns you get with wootz.

The most common explanation is that the forged steel is named after Damascus, the capital city of Syria, which was one of the largest cities in the ancient Levant – historically, a large area in the eastern Mediterranean region of west Asia.

‘Wootz’ steel, or ‘Seric’ steel, is a crucible steel characterised by a pattern of bands and high carbon content that originated in the mid first century BCE in southern India. A high carbon Tamil steel, it was referenced around that time in Roman, Greek, Chinese, and north Indian texts.

According to Wikipedia, “The method was to heat black magnetite ore in the presence of carbon in a sealed clay crucible inside a charcoal furnace to completely remove slag. An alternative was to smelt the ore first to give wrought iron, then heat and hammer it to remove slag.”

What started out as “Dad, can I buy an old chainsaw to do up?” has become a collection of about 30 saws for 13-year-old Archie. The machines are displayed on one wall with all Grumpa's old bits and pieces



Bookcase

PLUS
CHECK OUT MAGSTORE.NZ
FOR THE SHED BACK ISSUES

Best of The Shed

Featuring 18 of the best projects from the last 10 years, The Best of The Shed includes all of our most popular projects. With step-by-step instructions, the 176-page book will take you through a variety of projects, including a pizza oven, a trailer, a rocking horse, and a knife.

\$19.90



How to Weld

Learn how to weld with this best-selling book on the subject. Suitable for beginners through to experienced welders, this 207-page book will help you to transform ordinary steel into a blank canvas for invention.

\$65

Professional Sheet Metal Fabrication

The most detailed sheet-metal book available, this 304-page paperback includes clear instructions on a variety of subjects — including directions for using pneumatic hammers, an English wheel, and more. Learn how to form door seams and to make fenders, hoods, and other body parts.

\$75



Best of The Shed 2

Want to make your own outdoor fire, bedside cabinet, or Damascus steel knife? Maybe you want to learn how to make your bicycle electric? These are just a few of the projects we have included in this second edition of Best of The Shed. All have clear instructions that demonstrate the build process and include diagrams and parts lists.

\$22.95



Engineers Black Book - 3rd Edition

Boasting all of the information you need — including useful tables and templates — this 234-page pocket-sized book is the essential reference for machinists, engineers, designers, and makers.

\$121



Handy Workshop Tips & Techniques

The ultimate workshop companion, this 320-page book is a comprehensive guide for anything crafted of wood and metal. With something to teach everyone, this book has ideas to encourage and inspire, and clear directions that'll lead you through a project every step of the way.

\$53



ORDER FORM

Post To: Magstore, PO Box 46194, Herne Bay, Auckland 1147

ITEM	PRICE	QUANTITY
Best of The Shed	\$19.90	
How to Weld	\$65.00	
Professional Sheet Metal Fabrication	\$75.00	
Engineers Black Book - 3rd Edition	\$121.00	
Vintage Upcycling with Raspberry Pi	\$20.00	
Best of The Shed 2	\$22.95	
Handy Workshop Tips and Techniques	\$53.00	
Postage & Packaging New Zealand	\$8.00	Per book
Postage & Packaging New Zealand Rural	\$12.00	Per book
Postage & Packaging Australia	\$16.00	Per book
Total number of items		
Plus Postage & Packaging		
Total cost		

PAYMENT DETAILS

Name:

Postal address:

Postcode:

Phone: Mobile:

Email:

☐ Visa ☐ Mastercard ☐ Cheque

Cheques payable to Parkside Media Ltd

Name on card

Card number

Expiry date Signature:

Terms and conditions: Only while stocks last. New Zealand billing addresses only. Offer available on direct purchases from MagStore. See magstore.nz for full terms and conditions.

MISSED AN ISSUE?

THE EASIEST WAY TO ORDER IS ONLINE AT **MAGSTORE.NZ**, CLICK ON BACK ISSUES"



Issue 114
Apr-May 2024



Issue 113
Feb-Mar 2024



Issue 112
Dec-Jan 2024



Issue 111
Oct-Nov 2023



Issue 110
Aug-Sep 2023



Issue 109
June-July 2023



Issue 108
May-June 2023



Issue 107
Mar-Apr 2023



Issue 106
Jan-Feb 2023



Issue 99
Nov-Dec 2021



Issue 98
Sep-Oct 2021



Issue 97
Jul-Aug 2021



Issue 96
May-June 2021



Issue 95
Mar-Apr 2021



Issue 94
Jan-Feb 2021



Issue 93
Nov-Dec 2020



Issue 92
Sep-Oct 2020



Issue 91
July-Aug 2020



Issue 84
May-June 2019



Issue 83
Mar-Apr 2019



Issue 82
Jan-Feb 2019



Issue 81
Nov-Dec 2018



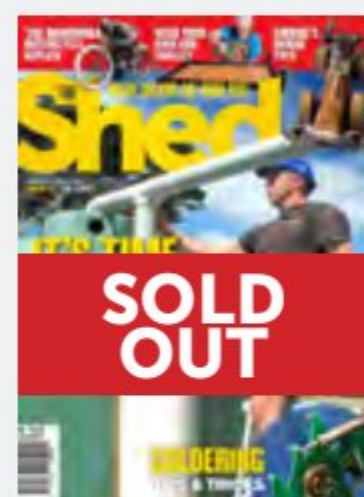
Issue 80
Sep-Oct 2018



Issue 79
Jul-Aug 2018



Issue 78
May-June 2018



Issue 77
Mar-Apr 2018



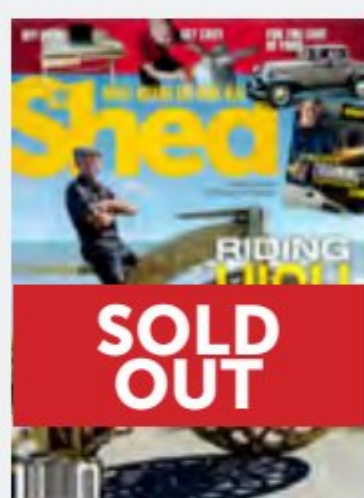
Issue 76
Jan-Feb 2018



Issue 69
Oct-Nov 2016



Issue 68
Aug-Sep 2016



Issue 67
June-July 2016



Issue 66
Apr-May 2016



Issue 65
Feb-Mar 2017



Issue 64
Dec 15-Jan 2016



Issue 63
Aug-Sept 2015



Issue 62
Aug-Sept 2015



Issue 61
June-July 2015



Issue 54
April-May 2014



Issue 53
Feb-Mar 2014



Issue 52
Dec-Jan 2014



Issue 51
Oct-Nov 2013



Issue 50
Aug-Sept 2013



Issue 49
June-July 2013



Issue 48
April-May 2013



Issue 47
Feb-Mar 2013



Issue 46
Dec-Jan 2013



Issue 39
Oct-Nov 2011



Issue 38
Aug-Sept 2011



Issue 37
Jun-Jul 2011



Issue 36
Apr-May 2011



Issue 35
Feb-Mar 2011



Issue 34
Dec-Jan 2011



Issue 33
Oct-Nov 2010



Issue 32
Aug-Sept 2010



Issue 31
Jun-Jul 2010



MAGSTORE.NZ



ONLY
\$16.95
EACH

THE WHERE DREAMS ARE MADE REAL Shed Postal order form

Name: _____

Postal address: _____

Postcode: _____

Phone: _____

Email: _____

Visa ☐ Mastercard ☐

Card Number: _____ CSV: _____

Cardholder name: _____

Expiry date: _____

Signature: _____

ISSUES

Tick issue numbers below (black = sold out).

- | | | | | | | |
|------------------------------|------------------------------|--|--|--|--|--|
| ☐ 114 | ☐ 101 | ☐ 88 | ☒ 75 | ☐ 62 | ☐ 49 | ☐ 36 |
| ☐ 113 | ☐ 100 | ☐ 87 | ☐ 74 | ☐ 61 | ☒ 48 | ☐ 35 |
| ☐ 112 | ☐ 99 | ☐ 86 | ☐ 73 | ☒ 60 | ☒ 47 | ☒ 34 |
| ☐ 111 | ☐ 98 | ☐ 85 | ☐ 72 | ☒ 59 | ☐ 46 | ☐ 33 |
| ☐ 110 | ☐ 97 | ☐ 84 | ☐ 71 | ☐ 58 | ☒ 45 | ☒ 32 |
| ☐ 109 | ☐ 96 | ☐ 83 | ☐ 70 | ☒ 57 | ☒ 44 | ☐ 31 |
| ☐ 108 | ☐ 95 | ☐ 82 | ☒ 69 | ☐ 56 | ☒ 43 | ☒ 30 |
| ☐ 107 | ☐ 94 | ☐ 81 | ☒ 68 | ☒ 55 | ☐ 42 | ☒ 29 |
| ☐ 106 | ☐ 93 | ☐ 80 | ☒ 67 | ☒ 54 | ☐ 41 | ☒ 28 |
| ☐ 105 | ☐ 92 | ☐ 79 | ☒ 66 | ☒ 53 | ☒ 40 | ☒ 27 |
| ☐ 104 | ☐ 91 | ☒ 78 | ☒ 65 | ☐ 52 | ☐ 39 | ☒ 26 |
| ☐ 103 | ☐ 90 | ☒ 77 | ☐ 64 | ☐ 51 | ☐ 38 | ☒ 25 |
| ☐ 102 | ☐ 89 | ☐ 76 | ☐ 63 | ☐ 50 | ☐ 37 | ☒ 24 |

☐ Storage Binder

Pricing: _____

Issues - \$16.95 each

Postage & Packaging: _____

\$6.50 for 1-2 issues

\$11.00 courier for 3 or more

\$15.00 rural courier

Total Cost: _____

Post to: _____

The Shed magazine, PO Box 46194

Herne Bay, Auckland 1147



All previous issues sold out

GO TO **MAGSTORE.NZ** & CLICK 'BACK ISSUES'

MENZSHED[®] NEW ZEALAND

**THE MEN'S SHED MOVEMENT IS ABOUT
MAINTAINING MEN'S HEALTH AND WELL-BEING
IN AN ENVIRONMENT CATERING FOR THEIR INTERESTS**



A shed brings men together in one community space to share their skills, have a laugh, and work on personal projects or within a group for the shed or community.

Sheds and their members decide the projects to undertake. However most sheds throughout New Zealand take on some community projects, examples include repairing toy library stock, building playgrounds for early learning centres,

repairing old bikes for community distribution, building planter boxes for the main street of the local central business district, the list goes on.

The shed is a great place for blokes to learn new skills. We see builders teaching

engineers some of their skills and vice versa.

Sheds have been operating in New Zealand since 2008. The last decade has seen the number of sheds across both urban and rural areas increase to 140.

We have a team of Regional Reps who attend to sheds and public inquiries:

Northland, Auckland - David Broadhead 021 324 762 regrep1@menzshed.nz

Waikato, Bay of Plenty, Gisborne - Keith Dickson 021 025 96454 regrep2@menzshed.nz

Lower North Is - Murray Campbell 021 070 2258 regrep3@menzshed.nz

Tasman, Nelson, Marlborough - David Packer 021 022 82592 regrep6@menzshed.nz

Canterbury, West Coast - Trevor Scott 021 022 11199 regrep4@menzshed.nz

Otago, Southland - Ian Miller 027 485 1452 regrep5@menzshed.nz

NORTH ISLAND

MenzShed Kaitia Inc
Kerikeri Men's Shed
The Shed (Russell)
Hokianga Men's Shed Inc
Whangarei Men's Shed
Dargaville Menz Shed
MenzShed Waipu Inc
Mangawhai Shed Inc
Men's Shed Warkworth
Hibiscus Mens Shed Trust
Settlers Blokes Shed Albany
Men's Shed North Shore
Devonport Community Workshop
Massey Community Men's Shed
Auckland Central Community Shed
Mens Shed Auckland East
Howick Community MenzShed Inc
Boomer Shed (Manurewa)
Waiuku Community Workshop
Whitianga Community Menz Shed Trust
Pauanui Community Menz Shed
Thames Community Menz Shed
Whangamata Community Menzshed
Paeroa Community MenzShed Trust
Waihi Beach Menz Shed
Menzshed Huntly
Katikati MENZSHED
MENZSHED Omokoroa
Morrinsville Community MenzShed Inc
Mount Maunganui Menz Shed
Tauranga Men's Shed Inc
The Te Puke Community Menz Shed
Matamata Community Men's Shed
Hamilton Community Men's Shed
Whakatane Menz Shed
Te Awamutu Community Menz Shed
Otorohanga Menz Shed
Rotorua Community Menz Shed Trust
South Waikato Menzshed Inc
MenzShed Te Kuiti
Mangakino MENZSHED
Tairāwhiti Menzshed
Taupo Community Men's Shed
Taumarunui & Districts Menzshed
MenzShed Waitara
Menzshed Wairoa
New Plymouth MenzShed

Menzshed Napier Trust
Menzshed Hawera
Menzshed Hastings Trust
Mens Shed Wanganui Trust
CHB Community MenzShed (Waipukurau)
MenzShed Dannevirke Inc
Feilding Menzshed
Menzshed Manawatu
MenzShed Pahiatua
Menzshed Foxton
Levin Menz Shed
Eketahuna Menz Shed
Otaki MenzShed
MenzShed Kapiti Inc
Henley Mens Shed Inc
MenzShed Carterton
Greytown Menz Shed
Plimmerton Community Menzshed Inc
Featherston Menz Shed
Menzshed Upper Hutt
Porirua MenzShed Inc
Menzshed Tawa
Men's Shed Naenae
Martinborough Mens Shed
Eastbourne & Bays Menz Shed
Wellington City MenzShed

SOUTH ISLAND

Mohua MenzShed Inc
Motueka Menz Shed
Nelson Whakat Menzshed
Havelock Menz Shed
Picton Men's Community Shed
MENZSHED Waimea
Tapawera Men's Shed Inc
Renwick Menz Shed
Menz Shed Blenheim
Westport Menz Shed
Westland Industrial Heritage Park Inc
Kaikoura Community Shed
Hanmer Springs Men's Shed
Cheviot Community Men's Shed Trust
Hawarden Waikari Mens Shed
Amberley Menz Shed Inc
Rangiora Menz Shed
Oxford Community Men's Shed
Menzshed Pegasus/Woodend

Menz Shed of Kaiapoi
Christchurch Busmenz Shed
Darfield / Malvern Menzshed
New Brighton Menz Shed
Bishopdale Menzshed
St Albans Menzshed
Hornby Community Menzshed
Riccarrton Park Menzshed Trust
Linwood Menz Shed
St Martins Community Menzshed
Halswell Menzshed
Redcliffs Community Shed
Rolleston Men's Shed
Men's Shed of Lincoln
Akaroa Men's Shed
Ashburton Menz Shed Inc
Men's Shed Trust Geraldine
Temuka Men's Shed
Timaru Community Menzshed
Omarama Men's Shed
Glenorchy Menzshed
Arrowtown MenzShed Inc
Cromwell Menz Shed
Waitaki Menzshed Inc
Oamaru Menz Shed
Alexandra Men's Shed
East Otago Blokes Shed
North Dunedin Shed Society Inc
Taieri Blokes Shed
South Dunedin Blokes Shed
Mataura Menzshed
Riverton Menzshed Inc
Menz Shed Invercargill Inc

**To learn more and to find a shed near you,
scan the QR code with your phone or
visit our website at www.menzshed.nz**





STIHL LIFE WITH A CHAINSAW

The contest? Man versus machine — but Jude wins the battle ... eventually

By Jude Woodside

“The salesman decided a man of advanced years, puny and clearly fragile, needed a new ‘easy start’ model”



There are some seasons that lift the spirits – spring, of course, but it can be unpredictable; my favourite is autumn.

It's not just the spectacle of colour that accompanies it, the bounteous harvest it coincides with, but the harmony of the weather. The days start cool; get warm; and end cool with, here on the east coast of the North Island, blue skies. We could certainly do with more rain, but I'm just enjoying what I've got as long as it lasts.

Securing next year's firewood

For me, autumn means trying to secure next year's firewood.

I've been clearing some fallen gums on my neighbour's farm. It's hard work, especially loading the rings, but it's very satisfying, and I get to enjoy these mild days working amid the dappled light.

I have recently traded my old chainsaw in on a new one. The old one

was just too hard to start. I would tug away at it until it flooded and I was exhausted. When I took it to the local dealer, who is built like a front-row forward with arms thicker than both my thighs put together, he would look at me quizzically and proceed to start it as if it was a toy. I bought a smaller saw mainly for pruning. It started easily and ran well, and I tended to use it for most of my work. However, the day came when I needed more grunt.

I give up

Out came the old saw, which had recently been serviced, and the struggle began anew. After trying on and off for two days, I cried, “It's got to go!”

The next day, I turned up at the dealer looking to trade it in for a better model. The salesman decided a man of advanced years, puny and clearly fragile, needed a new ‘easy start’ model.

I was moderately disturbed at the insinuation that I wasn't up to starting

a robust chainsaw, but the idea of something that would start more easily was appealing.

They started the saw in the shop and got me to start it, which I did easily. The next day, Good Friday, I attempted to start the shiny new toy, but alas I couldn't. In desperation, I consulted the manual and read about flooding.

Happy ever after

So I tried again, this time with plug spanner in hand to release the spark plug and dry the chamber. Another day with no success. This continued through to Easter Monday, whereupon I resolved to return the cursed thing and get another model.

On the Tuesday, I gave it one more chance – and you know it! It started first pull. I have subsequently found there is a half-choke setting that helps to get it going after the first cough. I am now well pleased with my ‘easy start’ saw, and it has been earning its keep. 🏠



Daffodil Rally for Cancer 🌼 Save the date!

Sunday 25 August 2024

"DRIVING OUR HISTORY"

Everyone
welcome!

No matter what
kind of vehicle
you drive

It's the Vintage Car Club's National Day and across New Zealand, hundreds of vehicles will be on the road or on display to raise money for your local Cancer Society.

To find out more about your local Daffodil Rally for Cancer visit:

www.vcc.org.nz

MACHINE FOR SUCCESS

NZ DESIGNED,
PROGRAMMED AND MADE
CNC MACHINE TOOLS
FERNMARK REGISTERED



WANT TO USE CNC BUT DON'T KNOW WHERE TO START?
DISCOVER YOUR JOURNEY WITH THE DISCOVERY GR

WWW: WWW.ZEALANDIA.SYSTEMS
PH LIAM: +64 21 122 8315 *

ZEALANDIA
SYSTEMS