

# SHOVEL PREPARATION

## PART ONE



SOUTHERN CROSS RIDE  
FOR DEPRESSION & SUICIDE AWARENESS



### WORDS & PICS DOC

It's no small task to prepare a bike that came down the line way back in 1970 for the ride I am planning, which incorporates two stages. Firstly I will ride it from my home in Adelaide over to Sydney, my departure point. From Sydney I will head right across the continent to Perth and then back home to Adelaide. The next leg will then take me from Adelaide to Darwin and back down

again, a total distance of some 14,102kms. This will complete what I have named my Southern Cross Ride for Depression and Suicide Awareness, an undertaking triggered by the loss by suicide of my eldest son Scott some years ago, who was working as a junior medical practitioner at Wollongong Hospital at the time. So we are talking big miles along with extremes of weather

and given that I will be on a schedule to coincide with radio and television interviews, breakdowns would be more than a minor inconvenience. A thorough check of the recently purchased bike indicated that I either needed to have the engine completely and totally rebuilt or replace it, so a call went out to S&S Cycle for a deal on one of their SH-series engines. As it turns out, one of the S&S

long-term employees Carla had recently lost her beautiful daughter Lisa to depression-induced suicide. S&S Company President Sam Scaletta wondered if I would consider incorporating Lisa into my ride and of course I agreed. S&S Cycle then very generously agreed to become a major sponsor of the ride by coming up with a killer deal on a brand new SH93 engine, a 93ci unit (1524cc). Wow! **HD**



### SUPER S&S

Now the design and engineering of these engines has been greatly improved from the original units built by Harley-Davidson back in the day. The SH93 engines feature forged pistons with a moderate compression ratio of 8.2:1, a Super E carb, a Super Stock single-fire ignition, and a billet gear cover. S&S reckon the SH93 is a good choice for daily riders, and is great for touring applications.

### BAKER JOINS THE MISSION

When you've got a new engine, why not hook it up to a new transmission? And there could be no better transmission to hook it up to than a Baker 6-into-4. When they heard of the purpose of this ride, Bert and Lisa Baker were more than happy to join S&S and come on board as major sponsors also. Now I can't do better than quote the Baker Drivetrain website for the logic behind these high quality transmissions.

"Sales of these transmissions have been a complete shocker and the message is loud and clear: People love their Shovelheads and they ride the piss out of them. We often get asked why not a 5-into-4? Well this is because 4-speeds have a 1:1 fourth gear and so do Evo 5-speeds which therefore provides no rpm advantage to your old iron. Whereas our 6-into-4s have a 1:1 fifth gear and a .86:1 sixth gear, which is good for a 500rpm reduction on the highway."



LEFT & ABOVE: Shovel owners know the sad story. The torque on the clutch nut backs off a hair and the key on the transmission mainshaft shears off. This usually happens at the most inconvenient time and place. The Baker splined Shovel clutch kit retrofits and upgrades the stock tapered mainshaft and clutch to a modern 18-tooth spline configuration.

### BAKER 6-INTO-4

There was another aspect to consider and that was the fact that on this model Shovel the clutch basket is held in place by a keyway, rather than a much more secure spline as fitted to later models. Baker, rather cleverly in my opinion, produces the 6-into-4 with an option of either a keyed or splined mainshaft and so I went for the upgraded option. This meant purchasing from Baker a splined Shovel clutch kit which retrofits and upgrades the stock tapered mainshaft and clutch, to a modern 18-tooth

spline configuration. The kit includes a fully assembled clutch and splined 4-speed mainshaft to retrofit stock 1970-84 Big Twins.

### SPLINED SHOVEL CLUTCH KIT

Now there's a lot more to consider in prepping this bike for its journey than just the engine and drive train, and here's where Andy Stevens of Hyperformance Cycles/SA Choppers stepped up to the plate and volunteered his services to go through the bike top

to toe, so to speak. So Andy and his head tech, Adam Kalb, a fully qualified Harley-Davidson technician, set about the task. It turned out to be a lot bigger than even these highly experienced blokes had anticipated. Step one was to remove the old motor and transmission and with the engine and tranny removed, Kalby cleaned the frame in readiness to install the engine and then began the attack on the front end. The wheel was removed and the wheel bearings pulled and inspected, then washed and repacked. We were in luck with the brake shoes as they were

not worn too badly, and thus could be re-used. Kalby next mounted a new Shinko tyre and then turned his attention to the front forks.



ABOVE: Now, ta da (sound of trumpets) it was time to put the beautiful new S&S SH-Series engine into the frame and with Andy doing the lifting and Kalby the guiding, in it slotted. Next came the Baker 6-into-4 and then the inner primary was test fitted.



ABOVE & RIGHT: Removing the tubes required some considerable effort and revealed excessive wear so a new pair was ordered from Rollies Speed shop along with a fork seal kit. A special thanks goes to Rollie and his crew for facilitating the speedy delivery of these parts, which were urgently needed and which arrived on time as promised. Next Kalby replaced the badly worn head stem bearings and adjusted them.



ABOVE: Now early Shovels ran an oiling system that drip-fed the primary chain. But because we are running a wet clutch, Kalby plugged up the various holes in the primary that are now redundant. I mentioned test fitting the inner primary as the engine and transmission mounts are left loose as the primary is bolted to them. In this way the inner primary acts as an alignment tool for the engine and transmission.



LEFT: Andy began to tackle the bird's nest of wiring but a close examination revealed too many poor connections, half-melted wires and other potential problems so he decided that a rewire was in order. Although they are not required for legal reasons, for the sake of safety I decided to have Andy fit some indicators, including a rear indicator bar that I'd had nesting in my stash of old parts for the past couple of decades.

ABOVE: Another fairly minor problem, but one that needed attention anyway, was a pinhole leak in the top of the oil tank, which someone had amateurishly attempted to repair. So Kalby, after thoroughly cleaning the tank inside and out, re-welded it and gave it a lick of paint. There were quite a number of other jobs needed, the repair of some brackets and the replacement of mounting rubbers for the oil tank but one by one, Kalby worked through them.



LEFT: Because the bike will be ridden in the Northern Territory as well as across the Nullarbor we decided to fit an oil cooler, which also came out of my old parts stash. Following the mounting of the cooler Kalby cut and fitted oil lines to suit.

LEFT BELOW: Our good friends at Progressive Suspension also came to the aid of the project and sent us a brand new pair of progressively wound forks springs and a pair of rear shockers to smooth out those rough outback roads.



ABOVE: The next challenge for the boys was to make major modifications to the header pipes as the Baker 6-into-4 with Kicker is wider than the original gearbox. An entire day was spent cutting, shutting and welding to make this happen.

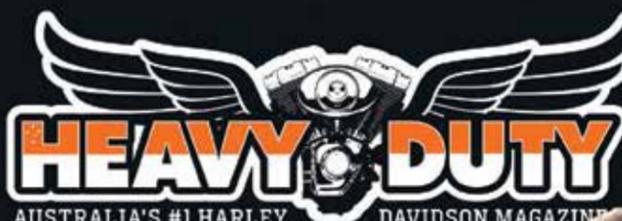
LEFT: Kalby then applies heat wrap tape to the pipes, which not only looks cool but also provides less radiant heat to the rider's legs and the bike's components and body. The wrap serves as a thermal blanket that directs more of the heat out of the exhaust outlet rather than the sides of the pipe. Though external heat control is the primary benefit, there is also a potential performance benefit. Hotter exhaust gasses (as created by the insulation of the wrap) are less dense. Thus, the exhaust "scavenging" can be more effective. In effect, intake and exhaust gasses are pulled more quickly through the engine, which increases performance.



ABOVE: Andy removes the old brake fluid from the master cylinder.



RIGHT: The rear wheel brake cylinder needed to be replaced and after re-assembly, the system is then bled. Now we're getting close and there aren't that many steps to go in getting the old girl ready for the long road ahead. I can tell you, my excitement is really building now.



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