



“Emma” - Thorn eXp expedition tourer - specification and spares outfit



General

Emma – my Thorn eXp expedition tourer – has been hand built in Somerset by Thorn Cycles Ltd¹. The specification reflects my own touring experiences, together with copious advice from Thorn’s Designer, Andy Blance. Whilst this document is intended to help others contemplating similar ventures to my own, it also has considerable utility for me, especially the provision of spares. Consequently, where

¹ www.thorncycles.co.uk

applicable, St John Street Cycles² stock numbers are shown in square brackets. The specification is sub-divided into a number of sections, with details of any associated spare components shown indented.

Frame

Thorn eXp custom build –steel³ frame handmade from Reynolds 531 tubing – light green⁴ - with S&S Machine Bicycle Torque Couplings⁵ (BTCs)

S&S Machine Bicycle Torque Coupling retaining rings⁶ x 2

Inner tube sections – approximately 10cm x 4 – spare covers for couplings

Bottom bracket⁷, cranks and pedals

Shimano Alivio M411 square taper cranks [14552L170] with Thorn 104mm 4 arm reversible single – black - chain-ring 7075T6/**40T** [11054S40] (bold figures denotes number of teeth), BCD 104mm

Shimano UN54 sealed cartridge bottom bracket 73mm shell, English thread (34.8mm / 1.37” diameter) 24 tpi, 113mm axle length [12987L113]

Shimano UN54 plastic adaptor⁸ (in addition to that supplied with cartridge)

Shimano XTR PD-M970 SPD pedals [13177] with Winwood Decksters clip-in pedal adaptors⁹ [18234]



² Sole provider of the Thorn range of cycles

³ Although do not envisage this being necessary, given quality of tubing used, steel chosen because the frame can be easily welded if it gets damaged

⁴ Chosen to enable cycle to look inconspicuous and / or blend into background when wild camping

⁵ Enables frame to be split into two. Couplings protected from water ingress using sections of old inner tube

⁶ Supplied by manufacturer

⁷ Consideration was given to replacing conventional 8 mm crank bolts with 6 mm TA self-extracting M8 ones [13251] but decided against this as crank extractor tool weight saving not deemed sufficient to compensate for perceived lower reliability of self-extracting bolts

⁸ Wrapped in bubble wrap to minimise risk of damage

⁹ Allows bike to be ridden without SPD cleats e.g. in event of failure, or wearing of non-SPD sandals. Also provides a spare cleat as one attached to adaptor plate to fit it to the pedal

Drive

Rohloff SPEEDHUB 500/14 CC 14 speed gear hub – 32 hole – black – with external gear mechanism¹⁰, with Rohloff tandem aftermarket to OEM plate converter for QR hub 8234T, and 17T¹¹ Rohloff SPEEDHUB 500/14 hub steel gear sprocket [10342S17]. Together with the chain-ring selected, and 26” wheels, distance travelled per crank revolution ranges from 1.35 – 7.10 metres (or 53.1-279.5 gear inches).



Stainless steel 1.1mm gear wire x 2 for use between handlebar shifter and external cable box [18367]

17T Rohloff SPEEDHUB 500/14 hub steel gear sprocket [10342S17]

Rohloff two-stage oil change kit¹² – cleaning oil and replacement Speedhub oil Art No 8411 [10341] – oil filler tube with threaded connector and 50 ml syringe also carried, obtained as part of the full oil change kit [12171]

Rohloff screw-in drainplug for Speedhub 500/14 Art No 8205 [10490]

Rohloff S-L-T-99 8 speed road drive chain¹³

Spare S-L-T-99 8 speed road chain links

¹⁰ External gear arrangement chosen as this considered to be more robust than the conventional arrangement for connecting the gear cables to the hub

¹¹ Provides lowest possible gear ratios

¹² For some sections such as China, 2 oil change kits carried

¹³ Alternative fitted is SRAM 3/32 inch PC890 for chain double or triple chainsets 114 links 7/8 speed HG compatible – silver – includes Power Link for ease of removal for cleaning / inspection. Carried in plastic box SRAM chain supplied in [15325]

Brakes

Shimano XTR M970 V brake, with XTR BL-M970 levers

Swissstop Blue Brake Pads for LX / XT / XTR Brakes - use with Ceramic & Rigida CCS Rims [13032]

Shimano barrel nipple brake inner cable wire x 2 [3570]



Wheels and tyres

Rigida Andra 30 tungsten carbide 26" ATB (559) black alloy rims

Front – 32 hole (regular drilled) [12859] with 260mm spokes and 14mm brass nipples

Rear – 32 hole (drilled for Rohloff hub¹⁴) [13269] with 238mm¹⁵ spokes and 14mm brass nipples

6 x 260mm and 6 x 238mm spokes carried, together with 12 x Sapim 14mm plated brass nipples (2mm gauge) [17410L14]; spokes carried longitudinally in base of rear pannier to minimise risk of bending / distortion

Phil Wood & Co large slotted flange front hub – black 32 hole

Spare cartridge bearings carried – Phil Wood & Co PWXR8¹⁶ (Generic ID: R8) x 2

Schwalbe Marathon Extreme¹⁷ HS402 high density guard folding tyre with reflective sidewalls - 2.0-5.0 bar – 26" x 2.25" (559-57) x 2

¹⁴ Rim holes angled so as to avoid undue stress on relatively short spokes (for a 26" wheel) utilised with a wide hub

¹⁵ 239mm acceptable alternative

¹⁶ Sourced directly from Phil Wood & Co (www.philwood.com) in USA or via www.bricklanebikes.co.uk in UK. May be possible to source locally using generic cartridge bearing ID R8

Schwalbe Marathon Extreme tyres x 2 – carried folded inside a rear pannier, wrapped in heavy duty plastic and taped securely [19498]

Schwalbe SV13 normal length Presta valve butyl inner tube 26" x 1.5-2.5" (559 x 40-62) (Two fitted, 5 spares carried including one for immediate roadside use in the handlebar bag, plus spare Presta valve covers) [3828]

Schwalbe high pressure rim tape (max 7 bar / 100 psi) size 20-559

Handlebars

Thorn Mk 2 comfort bar- satin black alloy [12228], Ergon GP1-L anatomic grips – large – black [11704]

Thorn Accessory Bar ('T' shaped) with 105mm extension [11040] – for bar bag



Headset

Threadless – with 1 1/8" cartridge bearings

Headset cartridge bearings x 2 – TH Industries 1 1/8" ACB 36° x 36° 872#

Seatpost and saddle

Brooks B17 Standard leather saddle – black with black steel rails [765S]

Post Moderne shim¹⁸ to fit 27.2mm seat post to a 29.8mm frame tube [2975S298]

¹⁷ For European stage Marathon Supreme HS382 folding tyre with reflective sidewalls 26" x 2.00" (559-50) fitted [13915]. Marathon Extremes are expected to have a typical life of about 10,000 km, somewhat less than the now discontinued Marathon XR at about 15,000 km

¹⁸ 29.8mm not a common size, whereas 27.2mm is. However, shim used because frame is steel and most seat pins are alloy, which can sometimes seize when in contact with steel, hence the shim to prevent this.

Shimano PRO PLT 2014 black alloy seat pin - 2 bolt¹⁹ 27.2mm diameter seat post [14254]

Pannier frames and bottle holders

Thorn Expedition steel rear cycle pannier rack – black powder coat [11694]

Thorn Mk V Cro Mo Steel Low Loader in black powder coat [11576]

Profile Design Kage [10985] x 3



Lights

Front – Cateye OptiCube²⁰

Rear – Cateye TL-LD600 LED²¹ [1956]

Mudguards

Front – Mr Crud Crudcatcher – black [10996BLK]

Rear – Thorn carbon Kevlar MTB rear mudguard [11538]

Miscellaneous

Although the panniers are not strictly an integral part of the bicycle, the carriage frames are, hence the inclusion of spares for the luggage securing mechanisms in this specification:

¹⁹ Two bolt preferred over single as it provides much greater flexibility to adjust saddle position

²⁰ Uses 3 x AAA batteries – normally used in flashing mode, sufficient output to be seen, but insufficient for safe navigation if only source of light available e.g. no street lights

²¹ Uses 2 x AAA batteries – normally used in flashing mode, in both inclement conditions, poor light and darkness

2 x QL-1 hooks²² 16mm with connecting webbing strap ('handle') and plastic inserts [Ortlieb Art No E162][14100]

QL-1 front pannier lower anchoring hook [Ortlieb Art No E143][14084]

Rear pannier anchoring hook x 1 – supplied with mounting rail [Ortlieb Art No E109][14068]

Selection of spare bolts [From Ortlieb Art No E102][

Fabric repair kit carried separately in field spares kit [Ortlieb Art No E163][17432]

²² Suitable for both front and rear panniers