Third Generation Diesels in the Canefields

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The first two generations of mainline Australian canefield locomotives have been previously described (in Narrow Gauge Downunder issues #29 April and #31 October, 2008). This article takes us into the bogie locomotive era: larger and heavier units capable of moving longer and heavier rakes on improved trackwork during the last quarter of the twentieth century.

Second generation locomotives were visually attractive to railfans and modellers alike, as their side rod drives provided a link with the earlier steam era. Bogie locos appear more like 'normal' diesel locos, albeit much smaller than their mainline cousins. Their longer wheelbase and the extra drivers allowed operation on some mills' existing light trackwork by spreading the locomotive's weight, but full utilisation required track upgrading. As a result, second generation locos continued to work the less well-maintained lines, bringing short rakes of bins to out-depots for assembly into larger rakes and fast transit to the mills behind the new bogie locos. Some second generation units were fitted for multi-unit operation and worked in pairs, while others were soon relegated to navvy duties.

While other companies did build bogie locomotives, the rise and fall of EM Baldwin & Sons of Castle Hill, NSW, really tells the bogie locomotive story for Australia. Starting as a small engineering works specialising in stainless steel fabrication, EMB had moved into small industrial locomotive production as a way of diversification following WW II. By the early 1960s Clyde and Comeng were providing most of the locomotives to the canefield market, but a 1962 tour through Queensland persuaded Baldwin that a potential market existed for another builder. The 1963 order for a three-ton 4w DM locomotive for the North Eton Mill got them into the market.

BELOW: Inkerman Mill unit Iona (EM Baldwin 4498.1 7.72 of 1972) is shown here sweeping off a branch onto the River Line west of Home Hill on Friday 20 September 2002. Iona entered service in 1972 for Kalamia Mill as Kilrie, Australia's first bogie locomotive built for the sugar industry. It was the beginning of a new era of cane locomotive design, and within five years Baldwin and its bogie units came to dominate the sugar cane locomotive market. Chris Walters photographer.

Significant Dates: Bogie Locomotives

1963: EM Baldwin started rebuilding, later constructing 15, 18 and 20 ton locos

1972: EM Baldwin built first bogie loco, 26 ton; later 15-32 ton; 51 to Oz, 2 to Fiji

1980s: First generation locos due for replacement

1985: EMB goes into receivership

1990: Eimco build 40 ton DH (4th generation locomotive)

Dates were extracted from McKillop, Robert F and Browning, John (2000). Sugar Cane Transport, LRRSA: www.lrrsa.org.au/LRR_SGRb.htm, downloaded 19/05/07.

ABOVE: Lorry's 'Clickety Clack - Stay Clear of my Track' message was the centrepiece of Moreton Mill's public safety program and a favourite of Nambour kids for several years before the Mill's closure (Coolum, EM Baldwin B-B DH of 1974). The message was especially important as the Nambour Mill track ran down the middle of one of Nambour's busiest city centre roads. Lynn Zelmer photographer.

Further trips to the Queensland canefields indicated that 24 ton side-rod driven locomotives were damaging track through their rigid wheelbase and pounding side rods. In 1964 EMB began marketing a 24-32 ton bogie locomotive to the Queensland mills as an alternative to their fixed wheelbase option. As this bogie quote was somewhat higher than for a comparable fixed wheelbase, and benefits not obvious for an untried design, sales were slow in coming.

In 1971 Kalamia Mill, with support from the Sugar Research Institute, gave EMB detailed requirements for a quotation that included a bogie locomotive as an acceptable option. EMB's tender in response had two options: a 26 ton side-rod locomotive or its bogie equivalent. In December EMB started construction on Kilrie, their first canefields bogie locomotive sale. An EMB drawing for this class of locomotive suggests an overall length of 20' 5", 6' 6" body width (7' 3" overall width), height above the rails of 10' 6", and a 4' 2" wheelbase on bogies set 11' 0" centre to centre (Built by Baldwin, p 80). Still in service, Kilrie has operated at Inkerman Mill since 1992 as Iona.

By May 1983 EMB had supplied forty seven 15-32 ton bogie locomotives to the canefields. However times were now tough and the Castle Hill plant was closed, followed by relocation to Rooty Hill where the primary product was agricultural tractors. Receivers took over in 1985 and outstanding railway orders were sold to Hexam Engineering. It would be another five years, and the introduction of fourth generation locomotives, for the market to pick up again.

LEFT: Two shots of Millaquin Mill's Barolin, a 24 ton EM Baldwin locomotive (B-B DH 6456.1 11.75 of 1975, DH24B Mk6). Note that aside from the curves of the cab and bonnet roofs the locomotive is quite 'boxy', with flat and relatively plain surfaces, making for easy modelling in brass or styrene. Lynn Zelmer photographer.

Modelling Third-Ger

Finding models of third generation locomotives to illustrate this article was a challenge, although the use of N and HO scale bogie loco mechanisms should have resulted in an easy route to building HOn30 and On30 bogie locos. Perhaps the very tight curves of many cane layouts - as small as 6" and 9" respectively for HOn30 and On30 - has precluded building them. However, I suspect that it's more likely that older cane modellers, like many other narrow gauge enthusiasts, prefer transition-era steam locomotives and early petrol and diesel locos.

Commercial sources for third generation locomotives are limited. Badger Bits has a freelance On30 etched brass kit to fit an HO mechanism, and HOn30 shells from Far North Hobbies may still be available to fit N scale mechanisms. HOn30 modellers should also look at the white metal and other kits available from the UK. Fortunately, third generation locos are fairly "boxy" and lend themselves to easy scratchbuilding in any scale.

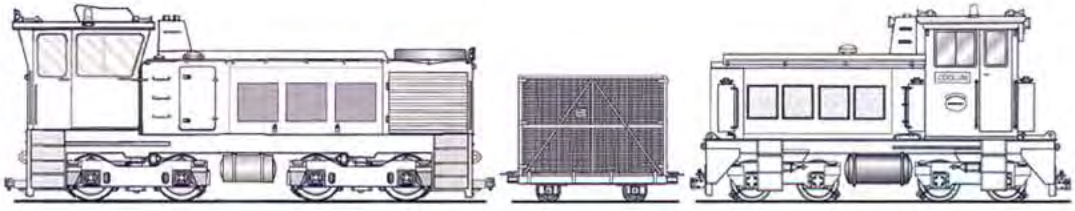
Lincoln Driver and his modelling colleagues built several HOn30 models of Bundaberg Sugar locomotives as part of constructing the "Wallaville" exhibition layout. These modellers benefit from easy access to the cane railways for measurement and photography, but adequate plans and photos exist on CaneSIG and similar web sources. Lincoln indicated that his locomotives were scratchbuilt from strip and sheet styrene, and mounted on American and British N scale mechanisms (Driver, p24). American modeller Jim Russell has built 7/8" scale models using similar techniques. His model of fourth generation B-B DH Netherdale is scheduled for inclusion in a subsequent article.

The body on Greg Stephenson's freelance bogie cane loco is a UK OO scale Knightwing Kit 0-4-0 standard gauge kit modified to fit an N scale Lifelike B-B diesel mechanism. Greg says "I seem to recall I removed part of the running boards that were outside the cab and the rear platform. I made new headstocks from plastic card to lower the body and split the original steps so I could use part of them for the front. The original moulded handrail along the bonnet was replaced with turned handrail knobs and wire. It was hand painted - I've never been guilty of using acrylics - so it would have been enamels from Airfix and Humbrol." Greg suggests that there's a Dapol Drewry kit that could be treated similarly and is more likely to be available in Australia.

I have one of the Badger Bits kits, a centre-cab design for a HO Lifelike S-1 or S-3 mechanism. I'm planning to kit-bash the locomotive with the cab at one end, as was more common in the canefields. The mechanism scales out to roughly 23' so it will make a very large locomotive for my railway, but it should be good practice for building a Badger Bits second generation etched brass Bli-Bli kit, and for scratch-building a more prototypical Baldwin B-B DH.

ABOVE: Greg Stephenson's HOn30 B-B DH cane locomotive from UK Knightwing OO scale 0-4-0 standard gauge kit modified to fit an N scale Lifelike B-B diesel mechanism. Lynn Zelmer photographer.

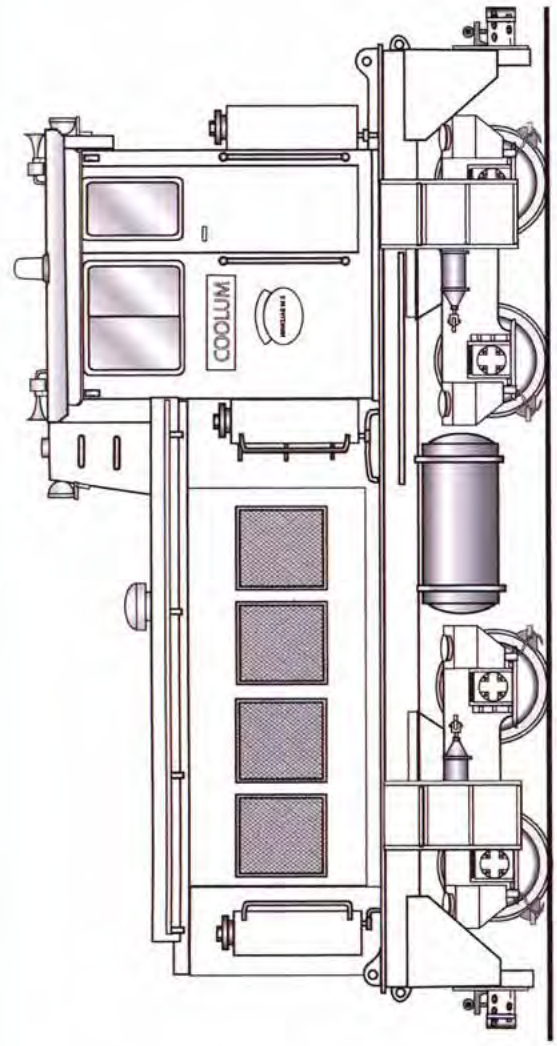
BELOW, OPPOSITE TOP: Two shots of Lincoln Driver's HOn30 model of Calavos (Millaquin Mill, EM Baldwin B-B DH 4983.1 7.73 of 1973, DH22B) operating on his Wallaville exhibition layout. This 22 ton locomotive was previously owned by Fairymead and Bingera Mills. John Dennis photographer.

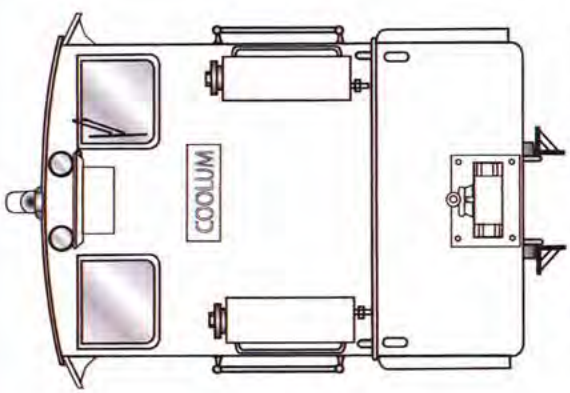


This drawing has been printed to the same scale as reference drawings in the earlier articles on locomotive generations so that you can compare relative sizes. Coolum (right, EM Baldwin B-B DH of 1974) is an early 15 ton third generation locomotive, while Burdekin (left, EM Baldwin B-B DH of 1982) is a later 32 ton version with sloped cab windows. Jim Fainges drawings.

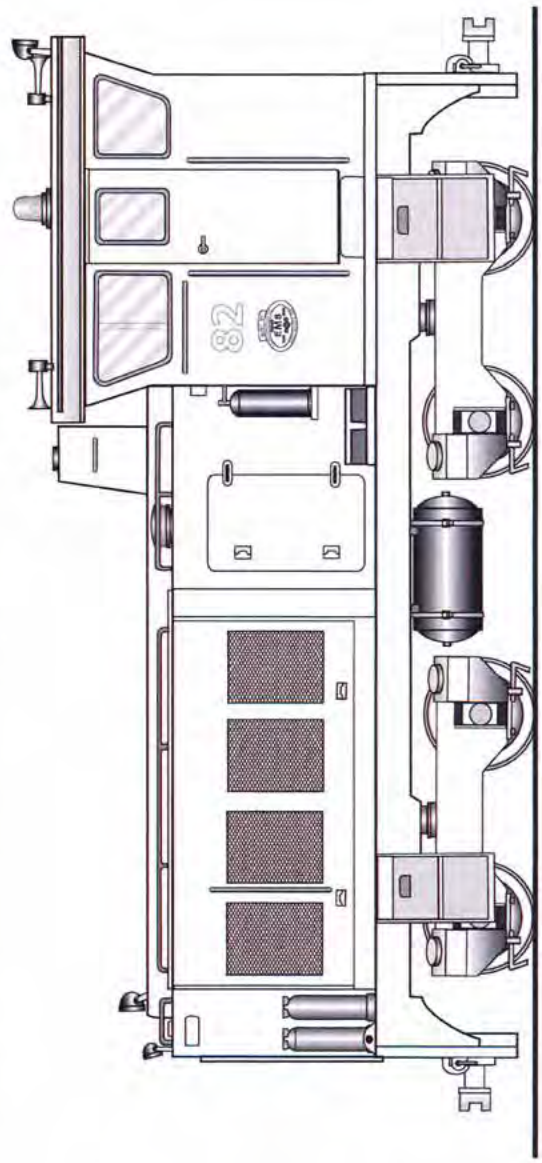
ration Cane Diesels

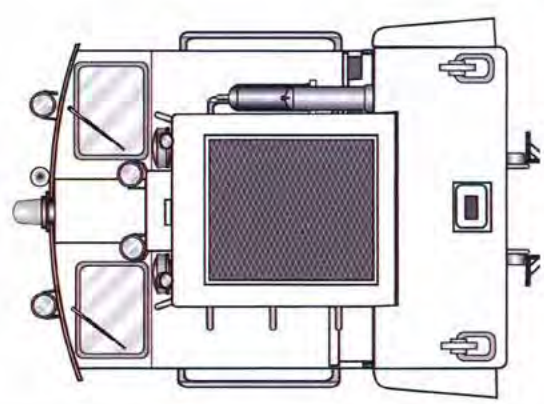
BELOW: Lincoln Driver's HOn30 model of Oakwood (Bingera Mill, EM Baldwin B-B DH 5800.1 5.75 of 1975, DH26B Mk2) operating on his Wallaville exhibition layout. Bingera operated this locomotive with Locotrol master/slave controls. John Dennis photographer.





Moreton Mill's heaviest locomotive, Coolum (EM Baldwin B-B DH of 1974, 5565.1 10.74 DH15B), is an early example of EM Baldwin's bogie locomotives. Also known as 'Lorry' and 'Clickety-Clack': the locomotive was the centrepiece for Moreton Mill's safety program and sported a smiling face on front and rear. The locomotive is now on the roster of Bingera Mill as Moorland after spending a short period at Fairymead Mill. Jim Fainges drawing from the CaneSIG Collection.





Fairymead Mill's 82 Fairyddale (EM Baldwin B-B DH of 1982. 10048.1.6.82. DH28B), since 2004 operating as Millaquin Mill's Fairyddale. The newer styling is obvious with the slanted cab windows, offering improved visibility and crew safety. This 28 ton locomotive is also longer and lower than it's 15 ton predecessor. Jim Fainges drawing from the CaneSIG Collection.

Acknowledgements & References

The best reference for identifying diesels in Queensland's canefields is John Browning's locomotive list on the Light Rail Research Society of Australia (LRRSA) web site (www.lrrsa.org.au/QLD_locolist_June2005.htm). The web site also has a number of other articles on Queensland and Fijian sugar cane railway motive power and history.

John Browning's list is also available on a mill by mill basis on the CaneSIG web site, along with additional photos, plans and modelling details (http://www.zelmeroz.com/canesig).

Driver, Lincoln with Dennis, John (photographer) (2007). 'Wallaville', Matraville: Australian Model Railway Magazine, 266/23:5, pp 17-24.

Wilson, Craig (2002). *Built by Baldwin: The Story of EM Baldwin & Sons*, Castle Hill, NSW, Melbourne: LRRSA.