

Early Internal Combustion Motive Power in the Canefields

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Sugar in Australia is primarily grown in the coastal strip from Northern New South Wales to Northern Queensland. While this terrain is fairly level, sugar cane is a bulky commodity and many of the rail lines have some fairly heavy grades, particularly when moving from one cane growing area to another.

Mills with railways own their own systems, with considerable diversity in motive power fleets, but the general trend has been a shift from the 1920s era lightweight 4-wheel petrol locomotives to 0-6-0 diesel hydraulic and B-B bogie diesel locomotives, ranging in weight from 15 to 40 tonnes. It should also be remembered that cane bins are not fitted with brakes, thus trains generally depend upon locomotive brakes. There is also some use of brake vans operated within or at the end of a 'rake' of cane bins and radio-controlled from the locomotive cab.

The first petrol-powered locomotives were introduced to the canefields in the 1920s and the first diesel locomotive in the 1930s. However it wasn't until the 1950s that diesels really started displacing steam, and one mill in the Mackay area (Marian Mill) was still operating with steam until 1981. Most Australian and Fijian locomotives since the 1950s have been Australian-built, with the newest locomotives - in fact all 'new' locomotives since 1991 - being rebuilt and re-gauged ex-government railway (Queensland and New South Wales) DH units originally built by Walkers in Queensland.

While several locomotive manufacturers produced significant numbers of a particular model, almost all were customised for the individual mills. As well, routine maintenance and upgrades and accidents resulted in both mechanical and visible changes to locomotives throughout their working lives. Repairs could even result in the cab or hood on a locomotive being replaced with one from another manufacturer.

Examples of each of the 'generations' of locomotives can likely still be found operating in one or more mills, with older units performing shunting or navy duties, or used in multiple-use hook-ups to minimise loco crews. Most main line locomotives will be fitted with global positioning equipment, and some have radio control 'remote shunting' facilities to permit driver-only operation. This eliminates the need for an offsider (fireman or points boy) as the driver can control the train from the ground, changing his own points, coupling and uncoupling bins, and recording bin pickups.

This article is the first of a series describing the several generations of internal combustion locomotives operating in Queensland canefields. Articles to follow will describe the four generations of mainline canefield diesel locomotives.



ABOVE: Simplex 'Smokey' (Motor Rail Ltd 4wDH 4054 of 1926, originally petrol) with its distinctive longitudinal radiator at Victoria Mill, 26 October 1996. Note the end buffer with its choice of coupling heights. In the 2000 locomotive list, Victoria Mill still had two operational Simplex 4wDH locomotives and a third had been converted to an unpowered ballast plough. By 2001 'Smokey' had been sold to a mill worker and dismantled to salvage the Dorman diesel engine. Greg Stephenson, photographer.

BELOW: Moreton Mill's 'Jlimpy' (Malcolm Moore 4wDH 1051 of 1943) on the navy train taking up the track following the mill's closure. Note the re-railer hung on the side of the frame and the non-standard roof design. Photographed on 6 August 2004 by Lynn Zelmer.





ABOVE: Planet (Hibberd 4wDM 3919 of 1959) in navy duty at the Australian Sugar Cane Railway, Bundaberg. The locomotive has since been remotored and equipped back and front with large tool boxes as it was in service with Bingera Mill. Lynn Zelmer, photographer.

BELOW: Early diesel to modern: Fairymead #9 (Ruston and Hornsby 4wDM 339311 of 1953) at Fairymead Mill in 1990. The fourth generation mainline locomotive behind (Eimco B-B DH L254 of 1990) subsequently went north to become Farleigh Mill's 'Farleigh'. Lynn Zelmer, photographer.



Significant Dates: Light Locomotives

1920: Motor Rail & Tramcar started building Simplex Tractors, 4wPM (Petrol Mechanical) locomotives. Most were 4 ton and later fitted with diesel engines. At least 37 were used in Australian mills and 24 in Fijian mills.

1926: John Fowler introduced its 0-6-0 PM locomotive.

1935: First diesel locomotive in the Australian canefields (Isis Mill, 15 ton 0-6-0DM Fowler, see NGDU #25).

1943-44: Malcolm Moore built 4wPM locos. At least 20 were supplied to Queensland mills, most were later converted to diesel. The Comeng 4wDH was designed as an equivalent competitive 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: The 7mm Malcolm Moore 4wDM (left) with a 7mm 4 ton cane bin was scratch-built in brass by John Burgess. The cab height on the 1/4" scratch-built 4wDM inspired by the Comeng Model G (right) is roughly one scale foot too short for an accurate model. It has a styrene body on a Boulder Valley chassis and is followed by an 1/4" 4 ton cane bin. Compare the relative sizes of the bins: these two images were taken at the same location and camera settings, and illustrate the roughly 10% size difference between the two 'O' scale/gauge combinations popular with cane modellers: On16.5 (7mm scale, 1:43) and On30 (1/4" scale, 1:48). On24 (or On2) modellers are much less common and must scratchbuild mechanisms as well as superstructures. Lynn Zelmer, photographer.



LEFT: Malcolm Moore 4wDM in 7mm scale (On16.5, 1:43), built by John Armstrong using a resin chassis, a vacuum formed plastic roof, and a Bachmann HO 44 ton bogie mechanism. Lynn Zelmer, photographer.



Comeng Model G in 7mm scale (On16.5, 1:43), built by John Armstrong. The chassis was cast as a Brisbane model club project, individual models reflect the skills of the modeller. Lynn Zelmer, photographer.

Modelling

Narrow gauge modellers love small petrol and diesel locomotives, 'critters' in the overseas modelling jargon, and the sugar cane mills had enough variety that almost anything in the 4-10 ton category, from any manufacturer or freelanced, could be justified for a cane layout. Photos, plans and commercial models, especially of US/UK locomotives in popular scales, are available from a variety of sources.

The Bundaberg Foundry Jenbach locomotive was the inspiration for Bob Dow's HOn30 models displayed at an early Modelling the Railways of Queensland convention. Full construction details using a N scale mechanism are available on the CaneSIG web site. An On30 model should be quite feasible using a 6 wheel BullAnt or similar HO mechanism.

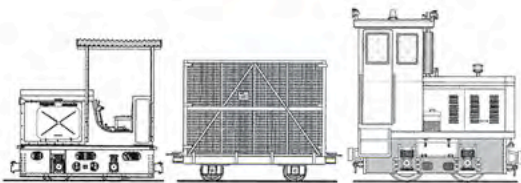
The 4wDH Comeng Model G inspired a Brisbane area scratch-building project aimed at young or novice modellers. The model used a powered bogie from an older HO Bachmann 44 ton diesel, although a Spud or Black Beetle mechanism would also work.

Malcolm Moore locomotives were modelled in 7mm scale by many Brisbane modellers, both in brass and styrene. Models are commercially available in 7mm from the Model Company of New Zealand and in SM32 (1:19) from Tootle Engineering.

The side rods on 0-4-0 internal combustion locomotives pose more of a challenge but the On30 Bachmann 4wPM model provides a good starting point for kit-bashing.



BELOW: Malcolm Moore 4wDM in 16mm scale (SM32, 1:19), available from Tootle Engineering. Tim Boulton, modelmaker and photographer.



Internal combustion locomotives:

Malcolm Moore and Comeng Model G with a Moreton Mill 4 ton bin for size comparison purposes.

Moreton Mill Sandy (Malcolm Moore 4wPM 1058 of 1943) has been preserved at the Nambour and District Historical Museum. Other examples can be found at ANGRMS (QLD), Puffing Billy (VIC), ILRMS (NSW), etc. and plans can be found in NGDU Issue 18.

Fairymead Mill #72 (Commonwealth Engineering 4wDH GA1148 of 1961) is 10' 0" from the rails to the top of the cab and has been privately preserved in Melbourne, VIC.

Jim Fainges drawings from the CaneSIG collection.

Acknowledgments and References

The best reference for identifying diesels in Queensland's cane-fields 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.

Browning, John (2005). 'Malcolm Moore V8 locomotives in sugar mill service' in Light Railways, 182, April, pp 9-15.

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Peterson, John (2005). 'World War 2 and the Malcolm Moore locomotive' in Light Railways, 186, December, pp 9-13.

Additional photos, plans and modelling details can be found on the CaneSIG web site (<http://www.zelmeroz.com/canesig>). →