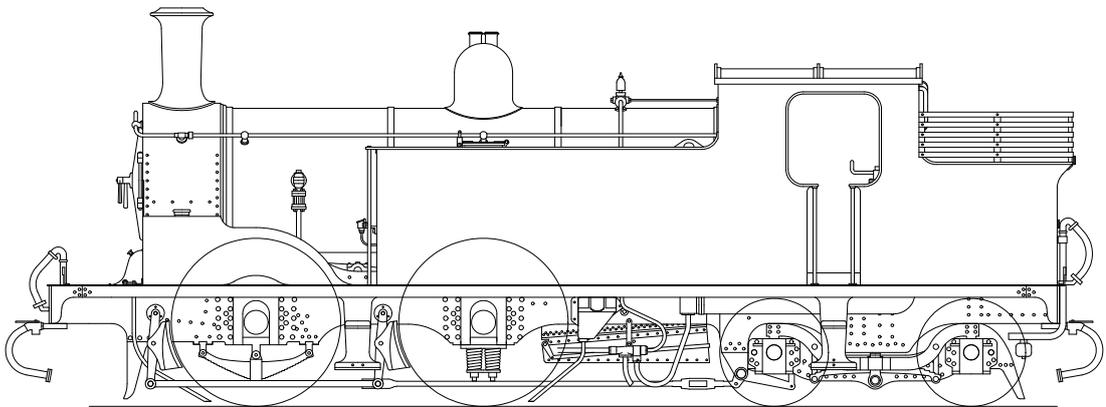


## DRUMMOND M7 LOCOMOTIVE KIT



### **CAUTION.**

This product contains etched parts with very sharp edges and castings that may contain lead. Neither the Manufacturer, Distributor or Retailer can accept any liability for illness, injury or consequential damage caused when handling or building this product.

Read any instructions before assembly. Do not eat or drink whilst handling.  
Wash hands after use.

## BRIEF HISTORICAL DETAILS

The locomotives which form the subject of this kit were the first design of Dugald Drummond for the LSWR. A total of 105 locomotives were built at Nine Elms and Eastleigh under 15 Order Numbers as follows:

Order	Numbers	Built	Frame	Reverse	Front Sandbox	Water Feed
M7	242-256,667-676	3/97-11/97	Short	Lever	With splashers	Injectors
V7	31-40	3/98-6/98	Short	Lever	With splashers	Injectors
E9	22-26,41-44,241	1/99-5/99	Short	Lever	With splashers	Injectors
B10	12,318-321	7/00-8/00	Short	Lever	With splashers	Injectors
C10	322-324,56,57	8/00-10/00	Short	Lever	In smokebox	Injectors
G11	123-124,30,32,33	2/03-3/03	Long	Steam	In smokebox	Injectors
H11	374-378	4/03-5/03	Long	Steam	In smokebox	Injectors
B12	21, 27-30	1/04-2/04	Long	Steam	In smokebox	Injectors
C12	108-111,379	3/04-6/04	Long	Steam	With splashers	Ram pumps
X12	45,104-107	3/05-5/05	Long	Steam	With splashers	Ram pumps
Y12	46-50	5/05-6/05	Long	Steam	With splashers	Ram pumps
B13	51-55	11/05-12/05	Long	Steam	With splashers	Ram pumps
D13	56-60	1/06-3/06	Long	Steam	With splashers	Duplex pumps
X14	125-129	8/11-11/11	Long	Steam	With splashers	Duplex pumps
A15	131,328,479-481	11/11-12/11	Long	Steam	With splashers	Duplex pumps

## SOURCES OF INFORMATION AND PHOTOGRAPHS

The Locomotives of the LSWR, Part II published by the RCTS.

LSWR Locomotives - The Drummond Classes, D.L.Bradley, Wild Swan.

A Pictorial Record of Southern Locomotives, J.H.Russell, OPC

Drummond Locomotives, Brian Haresnape & Peter Rowledge, Ian Allan

Locomotives Illustrated No. 73, South Western O-4-4Ts - Ian Allan

Southern Steam Locomotive Survey, The Drummond Classes, Bradford Barton

## VARIATIONS POSSIBLE WITH THE KIT

**Frame Length.** The last 50 locomotives were built with a front overhang 15" longer than the earlier locomotives.

**Chimney.** The long frame locomotives were fitted with a narrower chimney.

**Reverse.** The first 55 locomotives were built with lever reverse the remainder being built with steam reverse.

**Splashers and Sandboxes.** The first 45 locomotives were built with the leading sand box neatly combined with the wheel splashers. Drummond then experimented by putting the sandbox inside the smokebox with no external filler (Order No. B10 & C10 ) necessitating the opening of the smoke box door to replenish the sand. These engines had the traditional shape of Drummond smokebox front with wing plates. The next ten engines, the first with the long frame, continued with the smokebox sandboxes which now had an external filler on the smokebox side. The smokebox sandboxes were quickly removed and replaced with boxes beneath the platform, most by mid-1907, the last being No. 124 in October 1915. When, much later, these locomotives required new smokeboxes, from May 1939 onwards, the attractive wing plates were unceremoniously removed. The last, No. 376, had its wings clipped during March 1946. Experiments complete and unsuccessful! The remaining engines were built with the original elegant arrangement.

**Water Feed.** The first 65 locomotives were fitted with conventional injectors. Drummond then built the remaining locomotives with his feed water heating system, the last 20 locomotives having boiler feed by means of two Duplex pumps. The feed water heaters were inside the side tanks and were supplied with exhaust steam through brass pipes which led from the smokebox to the front of the tanks. The tanks were clad with false plates, to prevent heat loss and blistering of the paintwork, which was extended forward at the front to cover the extra pipework, giving the appearance of having longer tanks. Whilst the system did give a slight improvement in both coal and water consumption, it was expensive to maintain and this was one of Drummond's frills which his successor, Robert Urie, removed from 1922 onwards. All the cladding was removed including that around the front pipework revealing the standard length tanks.

**Clackboxes.** Numbers 242 to 256 and 667 to 676 were fitted with boiler side clackboxes. The remainder had their clackboxes sited on the bottom of the smokebox tube plate where they were hidden by the splashers. Again Urie soon got to work placing the clackboxes conventionally on the boiler sides.

**Front steps.** The earliest locomotives were built without the footsteps between the coupled wheels.

**Handrail knobs.** When built the earliest locomotives had the forward handrail knob on the boiler some way from the smokebox. On later engines it was mounted further forward. During SR days an extra short handrail knob for the boiler handrail was fitted to the right side of the smokebox.

**Tank Brackets.** Again in SR days two brackets were fitted to the top of each tank. Towards the front the bracket tied the tank to the boiler and at the rear of the bracket was a lifting eye.

**Coal Rails.** Two extra coal rails, to increase coal capacity, were added from circa 1912 onwards. At the same time bars were fitted over the rear cab windows. Later still the coal rails were backed by metal sheeting to stop the loss of small coal.

**Lamp brackets.** The locomotives were built with Drummond's socket style brackets. The SR standardised on a design with the socket in the lamp. Many locomotives had the Drummond brackets adapted to accept the standard lamps but gradually the locomotives were fitted with new brackets of standard design.

**Smokeboxes.** When smokeboxes were renewed the flush riveting was often replaced by visible snap head rivets. On many of the locomotives to improve the sealing of the smokebox door four clamping 'dogs' were fitted to the lower rim of the door.

**Handrails on front of tank.** During SR days a vertical handrail was fitted to the front of each tank. When the air operated auto-train control system was fitted the right side handrail was moved outwards to give clearance for the operating cylinder.

**Carriage heating pipes.** From 1901 onwards the LSWR introduced steam carriage heating equipment. The steam pipe to the bufferbeam mounted connections ran behind the right side valence. In later years this was lowered slightly and carried by five brackets along the lower edge of the valence.

**Couplings.** Most of the engines appear in their early years, from photographs, to be running with a single, long coupling link although some carry three link couplings. Later the locomotives were equipped with screw couplings together with a hook to carry the coupling when it was not required.

**Brake shoes.** Two different patterns are included.

**Cab doors.** Cab doors were fitted to the locomotives equipped with the air operated auto gear - see below.

**Balance weights.** Several different patterns of balance weight were used over the years. The last forty locomotives were built with Drummond's patent balanced crank axles which obviated the need for balance weights on the driving wheels.

## VARIATIONS/MODIFICATIONS NOT INCORPORATED INTO THE KIT.

**Conical smokebox doors.** Numbers 242-244 only were built with conical smokebox doors. These were removed during 1904-5.

**Ram pumps.** The first twenty locomotives built with feed water heating were equipped with Ram pumps.

**Auto train gear.** 45 locomotives were fitted from 1912 with the South Western cable and pulley gear for working auto trains. It was removed between 1928 and 1936. From 1930 thirty one of the long frame locomotives received the more practical compressed air control system.

**Superheating.** In 1921 Urie rebuilt number 126 with a superheated boiler all but identical to that being fitted to the 700 class 0-6-0 locos. This gave the loco an extended smokebox, higher boiler pitch and taller cab. Number 126 was withdrawn in 1937.

## CHASSIS OVERVIEW

Note that many of the components for both chassis and body are handed left/right and care must be taken to ensure the correct component is used. Components are not always identified left/right separately but with care and common sense no problems should arise.

Before construction can commence you have to decide which particular chassis you are going to construct.

**Finescale.** Where little sideplay is required, the widest spacers can be used but they will need careful filing to make their width 26.0 mm. If you require your engine to negotiate sharp curves then the middle width spacers should be used.

**Scaleseven.** The widest frame spacers supplied are suitable for Scaleseven and care will be needed to allow sufficient sideplay, especially in the leading axle to enable the model to negotiate moderate curves.

**Bogie Pivot.** There are alternatives for the position of the bogie pivot. The choice made will largely determine the radius of curve the locomotive will negotiate.

### Suspension

**Rigid.** The kit is supplied with top hat bearings to build a rigid chassis. Open out the main axle holes to accept top hat bushes and solder them in place.

**Sprung.** If you are going to fit sprung horn blocks, you should open out the frame slots by cutting up the half etched lines and follow the manufacturers instructions.

**Compensated.** The simplest and most reliable suspension system is beam compensation and the necessary compensation beams are provided in the kit. Not provided are the hornblocks and bearings which are available as an extra item which includes instructions for aligning the hornblocks accurately.

**Pickups.** No pickup material is provided. The options are:

**Scrapers.** Attached to the middle frame spacer using printed circuit board.

**Plunger.** Open out holes P and fit according to the manufacturers instructions. It may not be possible to use plunger pickups if you wish to fit the inside motion because they may foul each other.

**Split axle/frame.** We leave this to you! Some useful information can be found at

<http://www.euram-online.co.uk/tips/splitaxle/splitaxle.htm>.

**Motor/Gearbox.** Not provided. A Canon motor with a SDMP 40L/15 gearbox, from Finney7, or Canon motor with an ABC Mini7 gearbox are both recommended.

**Wheels.** Not provided - drivers 5'7", 18 spokes, 9" IL (Slaters 7867L) and bogie 3'7", 10 spokes, 5/32" axle (7843SWMF).