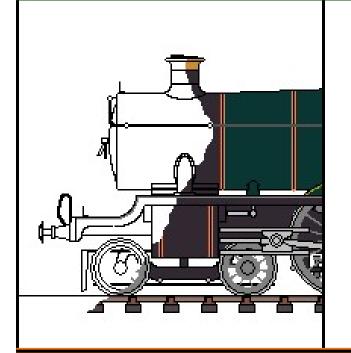




#### **GWR LOCOMOTIVE SKETCHPAD**



Design and Sketch Steam Locomotives based on Great Western Railway design principles

... and see what might have been ...

5.0.0



### **A Quick Tour**

This Quick Tour is based on pictures - with just a few words.



Some books which you may find useful are shown here.



### Aims

- To draw a Great Western Locomotive using as few measurements and options as possible

some 74 items of data

 To draw proposed or new types of steam locomotives using Great Western design principles



some 66 items of data

This is **NOT** a "Computer Assisted Design" program. It uses approximations based on rules and algorithms, and uses integer-based arithmetic. Any drawings are, at best, representative of the locomotive.



🗱 GWR Locomotive Sketchpad - GWR Locomotive Draw or Design Options					
File Setup Tools Windows/Dialogs Help					
<b>GWR LOCOM</b>	OTIVE SKETCHP	AD			
	Draw Locomotive Design New Locomotive	Elevation ✓ Left ← Right	Draw	R Locomotive Draw or Design Options         gs       Help         OTIVE SKETCHPAD         Draw Locomotive Design New Locomotive         Draw Locomotive       Use Leading Dimensions (text-based wizard)         ✓       Show design "step by step"         Use "Drawing Board" (graphics-based wizard)       ✓         ✓       Preset Wheel Arrangement         ✓       Warning Sounds DFF for ALL appropriate Drawing Forms	Next >
Three Options: • Draw Existing Design		sign		eate new Design by input f critical measurements	Exit
				eate new Design by using dr omponents which you resize	•



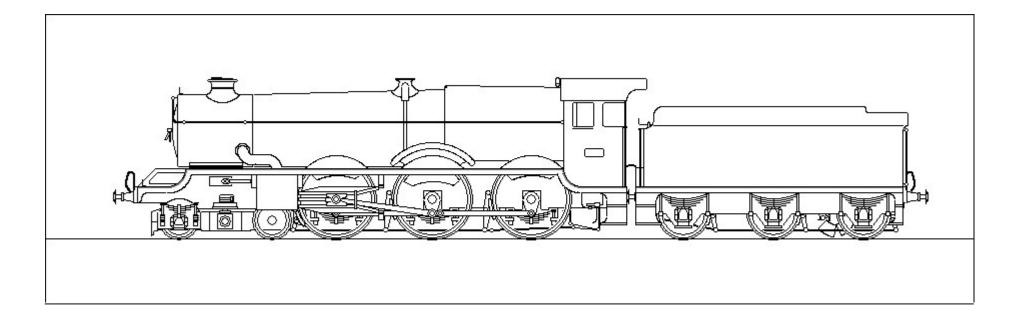
### **Draw Existing Design**

GWR Locomotive Sketchpad - GWR Locomotive Sketchpad - GWR Locomotive Sketchpad - GWR Locomotive Sketchpad - GWR LOCOMO		AD
	Draw Locomotive          Draw Locomotive         King         Show Technical Details	Elevation C Left Draw Exit

*Note* that the appearance of the forms – and the Start form in particular - depends on the Window Theme or Windowing system that you are using.



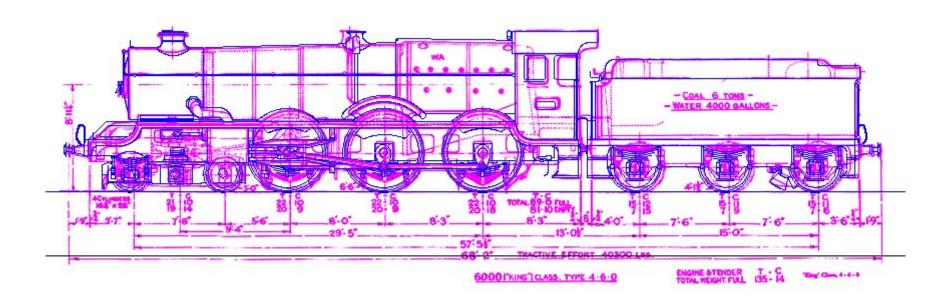
### **King class**



King Class Locomotive Drawing ("Weight Diagram") from the Sketchpad



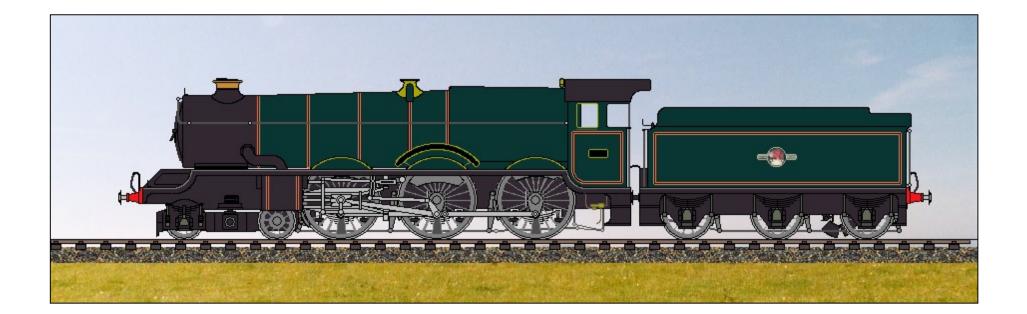
# GWR Loco Sketchpad "King" overlaid on the GWR Engine Diagram (outline General Arrangement Drawing)



Some of these "differences" are due to the rules and algorithms used.



You can change any locomotive design - to show what "might have been".



King Class Locomotive with outside Walschaerts Valve Gear

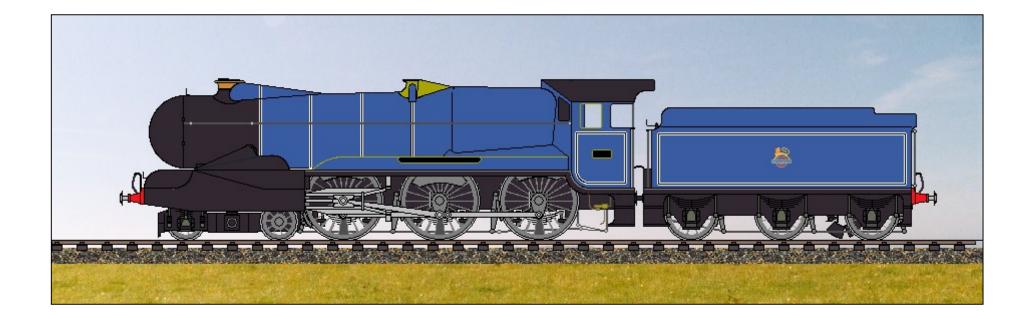




King Class Locomotive with full Air-Smooth casing

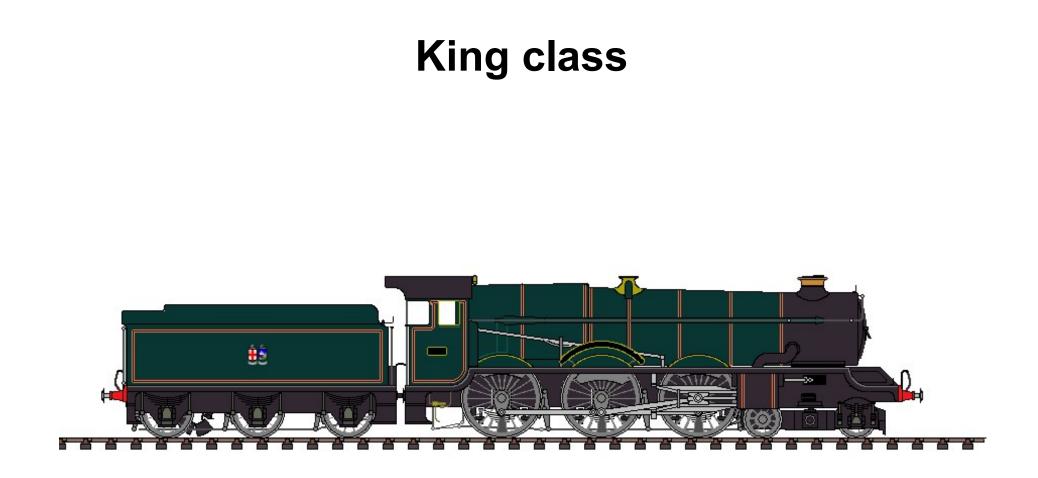


You can change the livery (to a recognised GWR/BR paint scheme).



What would a Streamlined King have looked like in BR "Caledonian" Blue?



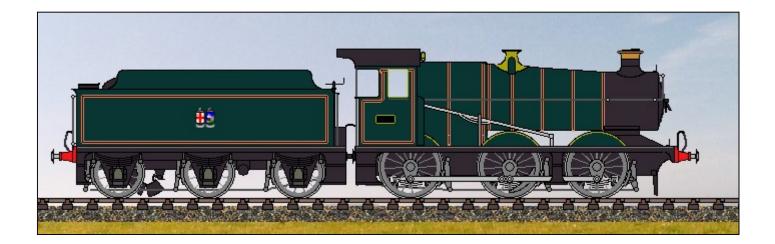


Right Elevation:

King Class Locomotive in Great Western Lined Livery



#### 2251 class



2251 in Great Western Lined "Passenger" Livery

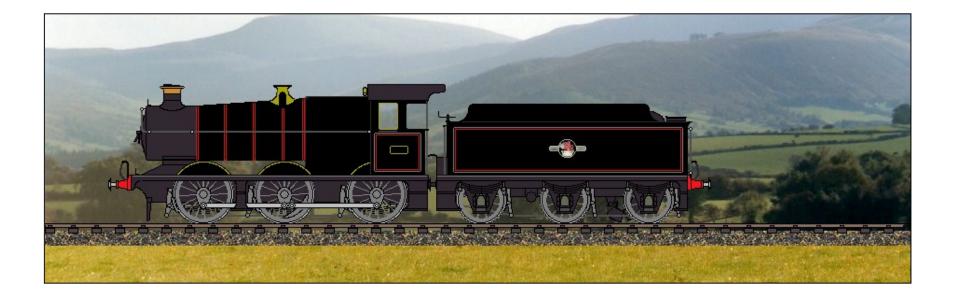


You can use a number of supplied backgrounds.



2251 in the Brecon Beacons (although this is not a view you can actually see from railside)

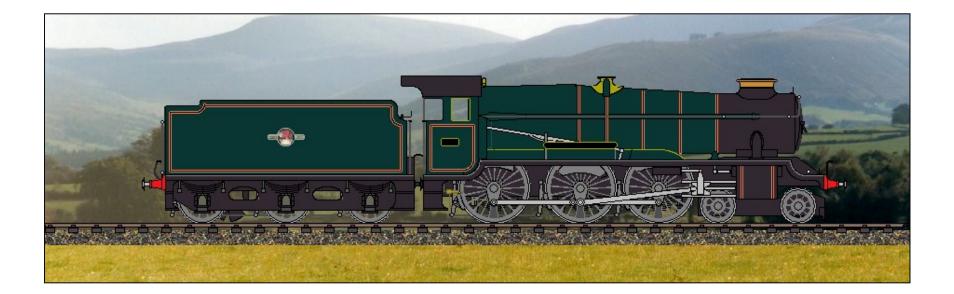




#### 2251 in British Railways Lined Black "Passenger" Livery



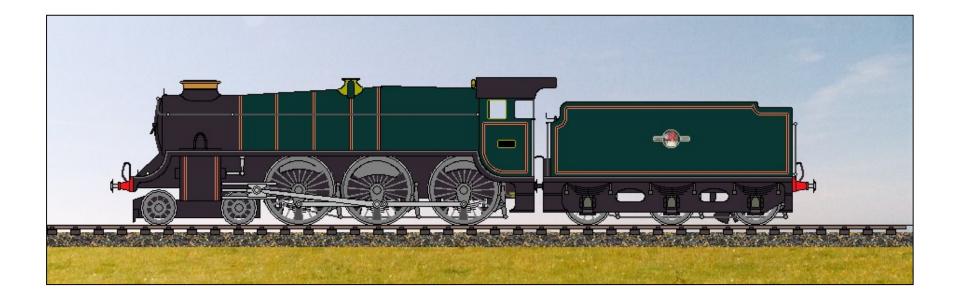
#### County (4-6-0) class



County Class Locomotive in British Railways Lined Green Livery



# You can see what a locomotive would look like if maintenance had become a key issue



#### County Class Locomotive with raised Running Plate (Footplate)



### **GWR Locomotive Sketchpad**

This section shows the GWR Locomotive Sketchpad freehand drawing option in use.

The locomotive drawing that follows is based on a sketched outline (done in 1946) for a "Pacific" or 4-6-2 locomotive.

(This is likely to have been just a drawing office unapproved "exercise".) Constraints Sketchpad - GWR Locomotive Draw or Design Options

File Setup Tools Windows/Dialogs Help

CWR LOCCOMOTIVE SKEPTCHPAD

Draw Locomotive Design New Locomotive

Design New Locomotive

Use Leading Dimensions (text-based wizard)

Vext>
Use "Drawing Board" (graphics-based wizard)

Preset Wheel Arrangement

Warning Sounds OFF for ALL appropriate Drawing Forms

Next>

Exit

Source books:

Rutherford, M Nock , O. S Summers, L. A. "Great Western 4-6-0's At Work" PRC "The GWR Stars, Castles and Kings" David and Charles

"A New Update of Swindon Steam" GWS



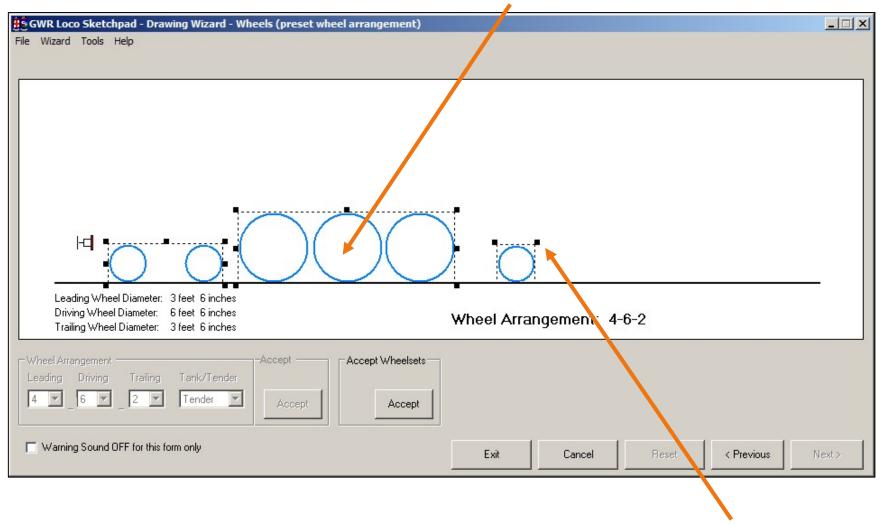
### "Drawing Wizard" based Design

ခိုခ်ို GWR Loco Sketchpad - Drawing Wizard - Wheels	
File Wizard Tools Help	
Wheel Diameter: 3 feet 6 inches	
wheel Diameter: 3 reet 6 inches	Wheel Arrangement
Current Wheel Accept Wheelsets	
Accept (or Delete) Current Wheel C Same size	
Delete Accept © Variable size Add Accept	
	Exit Cancel Reset < Previous Next >

Either set the wheel sizes and spacing (using the resize handles and moving each wheel as you draw it), and then the wheel arrangement is calculated for you ...



... or define the wheel arrangement and then set the wheel sizes and spacing. Click on an individual wheel to move it within the wheelset.



Resize the wheels and wheelsets by using the resize "handles"



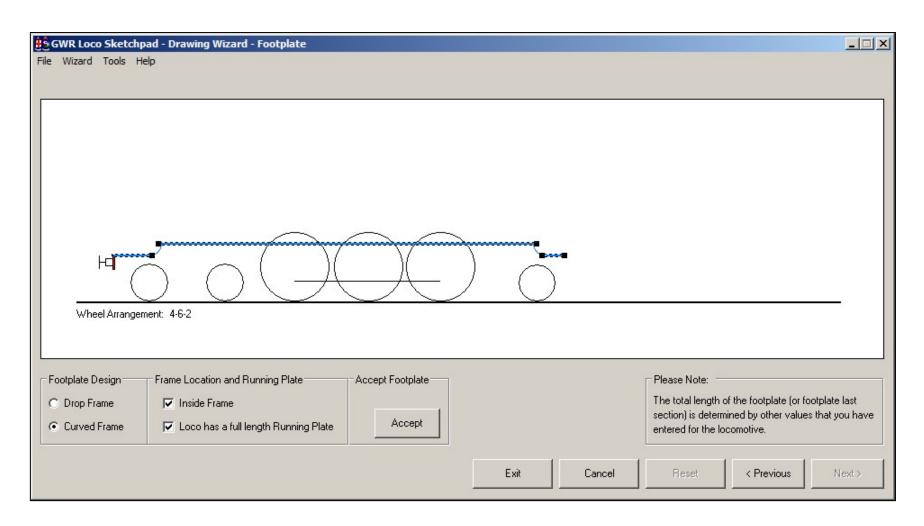
#### Click Accept in the Wheelset Complete box ...then set the number of spokes.

GWR Loco Sketchpad - Drawing Wizard - Wheels (preset wheel arrangement)	
File Wizard Tools Help	
Leading Wheel Diameter: 3 feet 6 inches	
Driving Wheel Diameter: 6 feet 6 inches Trailing Wheel Diameter: 3 feet 6 inches Wheel Arrangement: 4-6-	-2
	: Driving Wheels Spokes: Trailing Wheels
Leading     Driving     Trailing     Tank/Tender     11     Accept     25       4     6     2     Tender     Accept     Reset     11     Accept     25	Accept Accept
Accept Heset	Outside Frame
Warning Sound OFF for this form only	
	Reset < Previous Next >

#### Click all *Accept* buttons, then click *Next*



Set the height of main footplate section and the relative lengths of each part: grab a section (or section handles) and drag to new position or new size.



#### Option buttons and check boxes select the footplate "design".



Position and size cylinders (use the drawing handles - click on a handle and then drag it): options define number of cylinders and type of valve gear.

🔅 GWR Loco Sketchpad - Drawing Wizard - Cylinders	_ <u> </u>
File Wizard Tools Help	
Wheel Arrangement: 4-6-2 Cylinder Diameter: 16 inches	
CylinderStroke: 24 inches	
Cylinder Design Number of Accept Cylinders Valve Gear Accept Cylinders Cylinders Cylinders	Please Note: The vertical position of the
	inside (and outside inclined) cylinders are calculated when
Inside and Outside     Accept     Outside     Accept     Outside     Accept	the loco is drawn.
Exit Cancel Reset	<pre>&lt; Previous</pre>

As a possible Hawksworth design, the 4-6-2 might have outside Walschaert valve gear



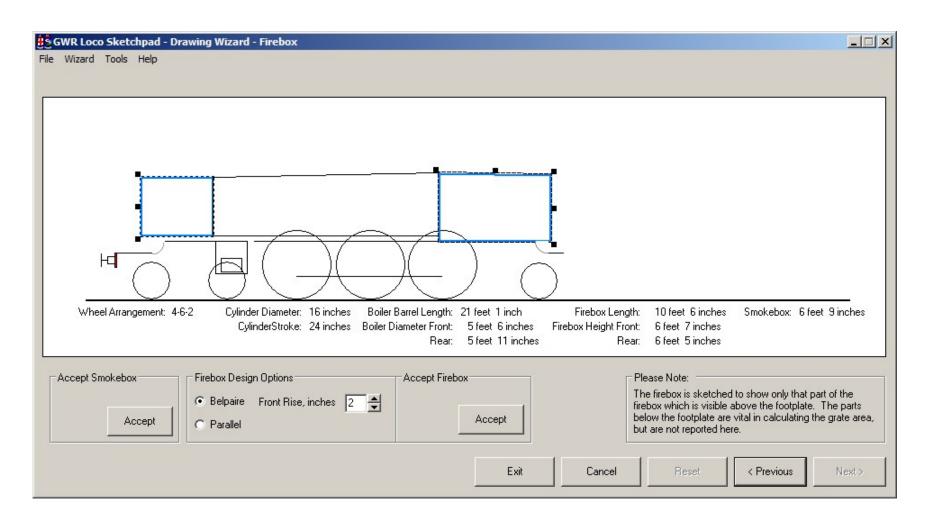
#### Use a Great Western Standard boiler - or design your own. If you select "coned" but make a parallel boiler, you are warned and the option reverts to "parallel".

🚦 GWR Loco Sketchpad - Drawing W	/izard - Boiler	<u> </u>
File Wizard Tools Help		
4		
<b>_</b>		
H H		
	$\mathcal{J} \setminus \mathcal{H} \to \mathcal{H}$	
Wheel Arrangement: 4-6-2	Cylinder Diameter: 16 inches Boiler Barrel Length: 21 feet 1 inch	
	CylinderStroke: 24 inches Boiler Diameter Front: 5 feet 6 inches Rear: 5 feet 11 inches	
Boiler Design Options	Accept Boiler	
	Coned Pressure 200	
Non-standard     O Pa	Parallel Accept	
Warning Sound OFF for this form only		1
	Exit Cancel Reset < Previous Net	st >

For the Pacific, we use a non-standard boiler, based possibly on standard Number 12



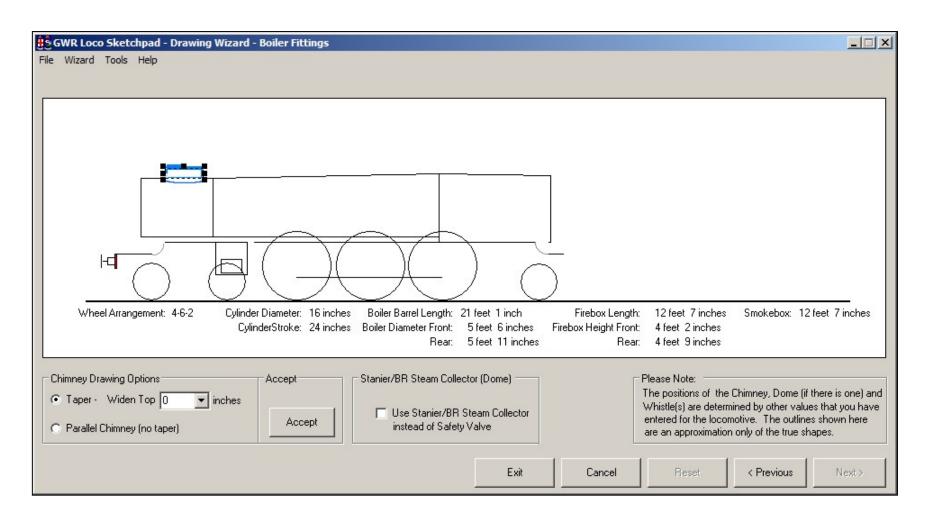
For a Belpaire firebox, adjust the rise at the front of the firebox using the dropdown list box. The sketches are quite rudimentary but show positions and sizes.



For this 4-6-2, use a non-standard firebox - not quite as long as the "King's" - but wider?



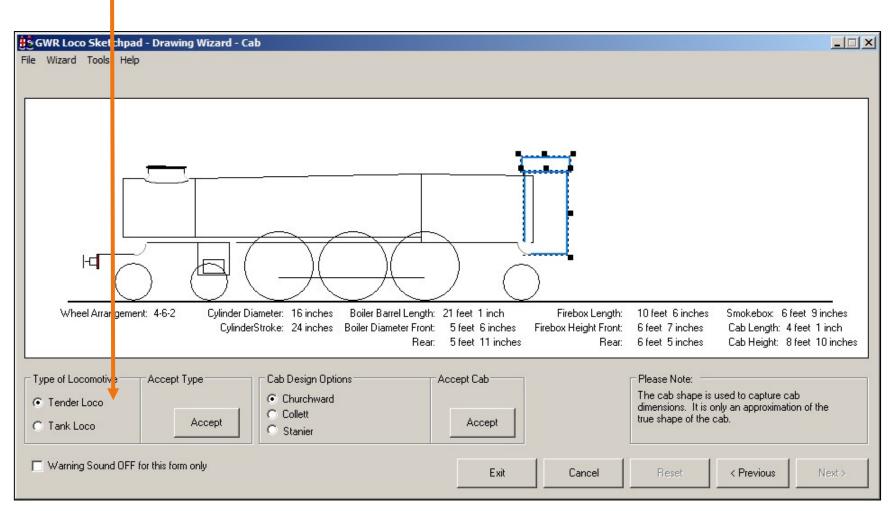
Boiler fittings are placed using rules and algorithms. You can set the size of the chimney, but not where it will be placed on the boiler.



For this Drawing Office "outline" Pacific, use a double chimney as standard.



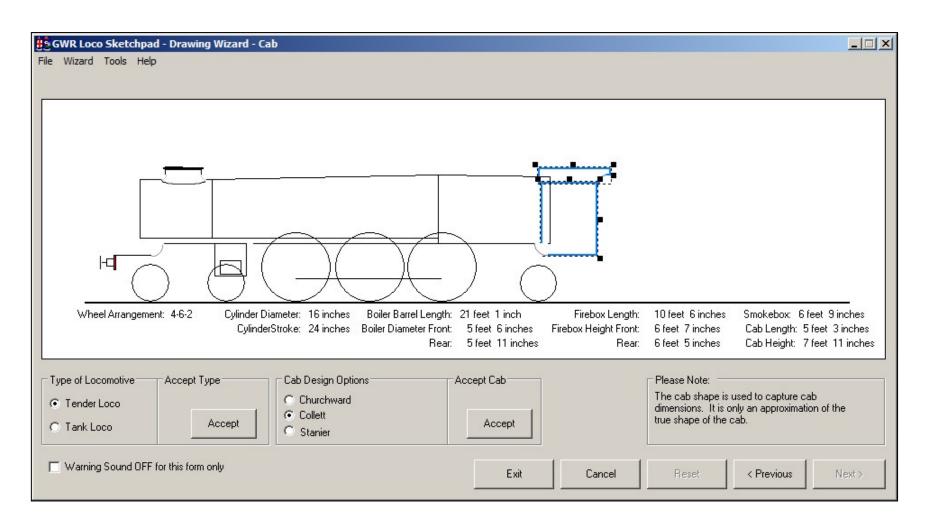
#### Choose whether to draw a Tender Locomotive or a Tank Engine.



If you set the wheel arrangement in the first "drawing board" of this sequence, the option is already set for you - but you can change your mind!



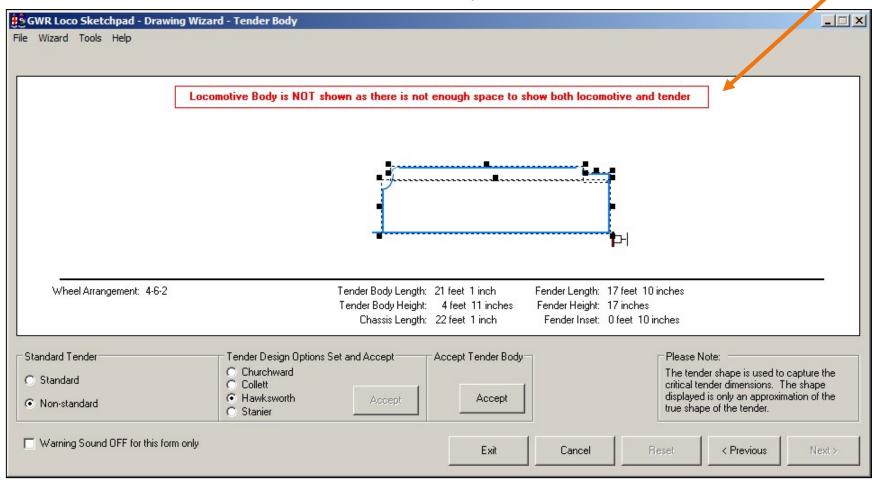
The cab and the cab roof - including the roof length for a Collett cab (or Stanier cab (where this option is present)) - are sized independently of each other.



#### The Pacific uses a Collett Cab - of course!



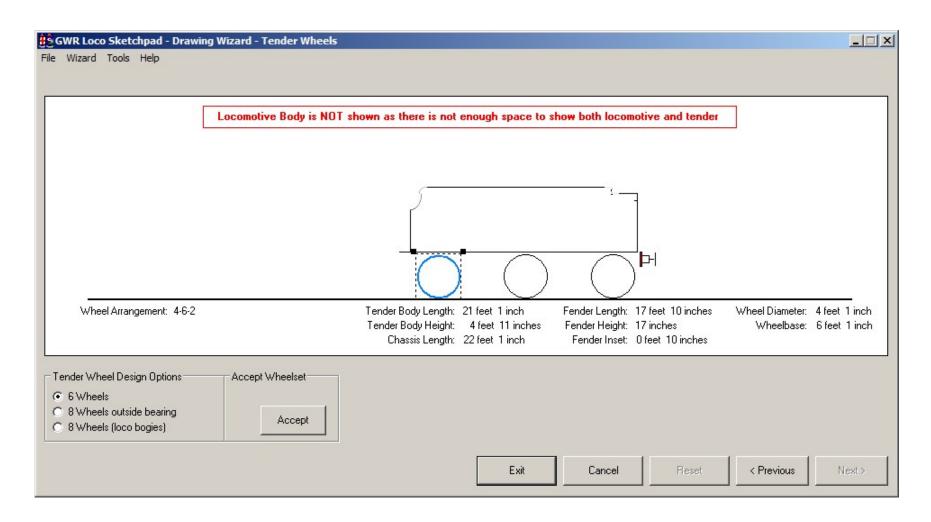
If you are drawing a large locomotive, the tender is shown on its own. As with the cab, the tender body and the tender (coal) fender (coal sheets) are resized independently of each other.



This "sketched" Pacific would most likely have had a Hawksworth pattern tender.



You can only resize and position the leading wheel of the tender wheelset: the other wheels adjust automatically.



The tender would have had 6 wheels - there were only 2 GWR 8-wheeled tenders



You select the livery for every locomotive that you design. Passenger tender locomotives may optionally have a nameplate, which you can size (within limits) using the dropdown list boxes.

GWR Loco Sketchpad - Draw File Wizard Tools Help	ing Wizard - Tender Locomotive Completion	<u> </u>
	Locomotive Body is NOT shown as there is not enough space to show both locomotive and tender	
Wheel Arrangement: 4-6-2	Tender Body Length: 21 feet 1 inch Fender Length: 17 feet 10 inches Wheel Diameter: 4 fe Tender Body Height: 4 feet 11 inches Fender Height: 17 inches Wheelbase: 6 fe Chassis Length: 22 feet 1 inch Fender Inset: 0 feet 10 inches	
Use Livery GWR Green 1928 Accept	Image: Nameplate       Nameplate       Size (% of Splasher):       50       Image: Solution state       Image: Solution	ed pacific
	Exit Cancel Reset < Previous	Next >

Select livery, select nameplate size, and identify your new locomotive class.



# Impression of the Drawing Office outlined 4-6-2

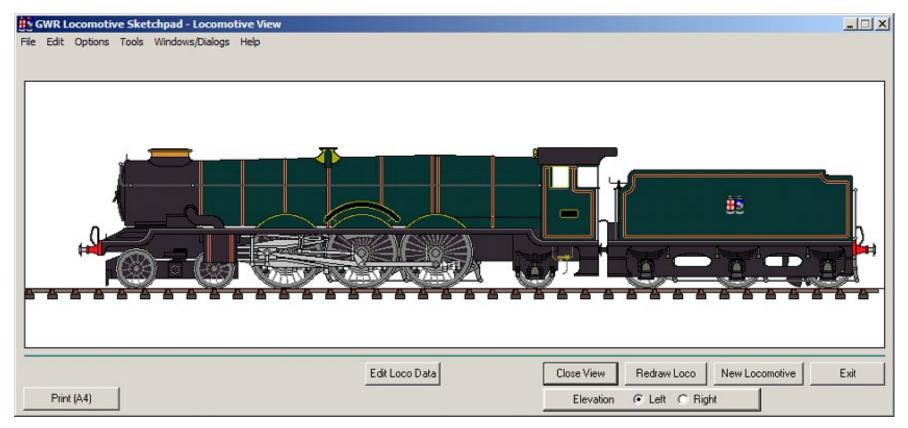
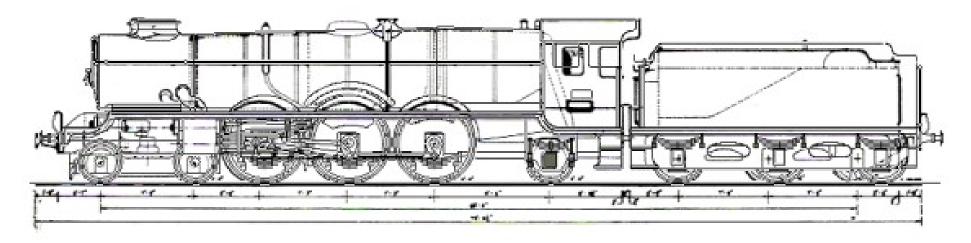


illustration taken from version 4.0.2



The Locomotive needs adjustment: from the Locomotive View select *Edit Loco Data* (if shown) Comparison (overlay) of the sketchpad design and available outline sketches



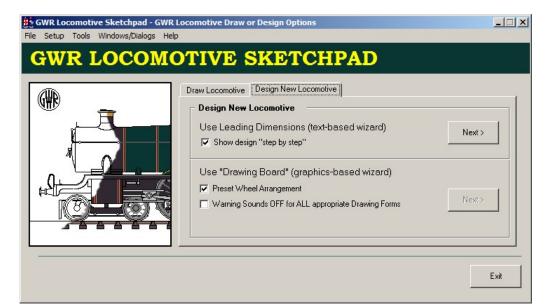
The button *Edit Loco Data* is not shown if the locomotive data file is "READ ONLY" or you have turned off the Advanced Options



### **Dimension-based "design"**

This section shows the GWR Locomotive Sketchpad "dimension" based approach in use.

The Locomotive is the proposed Collett 2-10-2 Tank (1937)



Source book:

- Griffiths, D "Locomotive Engineers of the GWR" Patrick Stephens Limited/Guild Publishing
- RCTS Part 9



#### **Dimension-based "design"**

GWR Loco Sketchpad - Leading Wheels d File Options Tools Help		
Wheels● Cylinders ● Motion ● Boiler ● Leading Wheels / Locomotive ✓ ✓ ✓		Engine
Preview	Exit Cancel < Previous Next >	

Define critical dimensions for existing, proposed or "freelance" GW-style Locomotives. This wizard is the one to use if you have the measurements to hand, or have a good idea as to the measurements that you need for your locomotive.



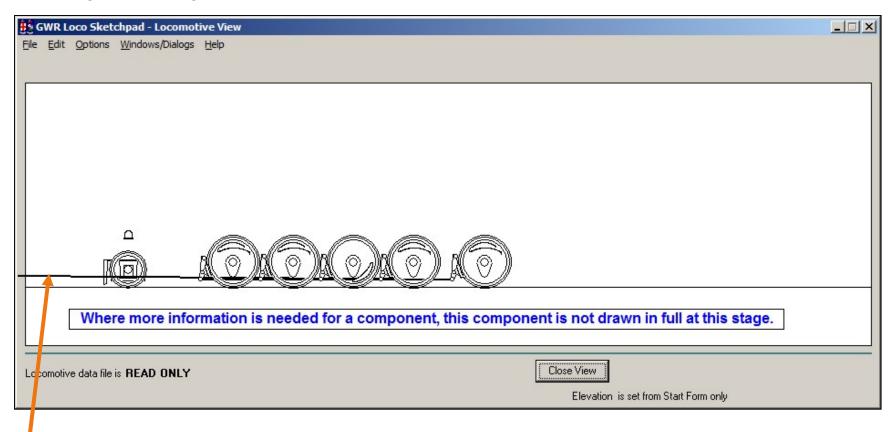
You use the previous dialog box or form to enter data for the locomotive leading wheels: in this form, you enter data for the driving wheels. One important measure is the distance from the front of the loco to the first driving axle centre line.

SWR Loco Sketchpad - Driving Wheels of File Options Tools Help	definition
● Wheels● Cylinders ● Motion ● Boiler	Boiler Fittings     Cab     Tender / Tank     Miscellaneous
Driving Wheels	Number of Driving Wheels: 10
	Number of Spokes: 20
M O O O O O O O O O O O O O O O O O O O	Diameter: 4 💌 Feet 7 💌 Inches
	First Wheel Centre: 10 💌 Feet 4 💌 Inches
	Wheelbase axle 1-2: 5 💌 Feet 6 💌 Inches
L	Wheelbase axle 2-3: 5 💌 Feet 6 💌 Inches
	Wheelbase axle 3-4: 5 Feet 6 Inches
	Wheelbase axle 4-5: 6 💌 Feet 6 💌 Inches
Preview	Exit Cancel < Previous Next >

Optional preview of drawing during design phase.



The dimensions-based wizard draws in full outline, as known at the current stage of design.



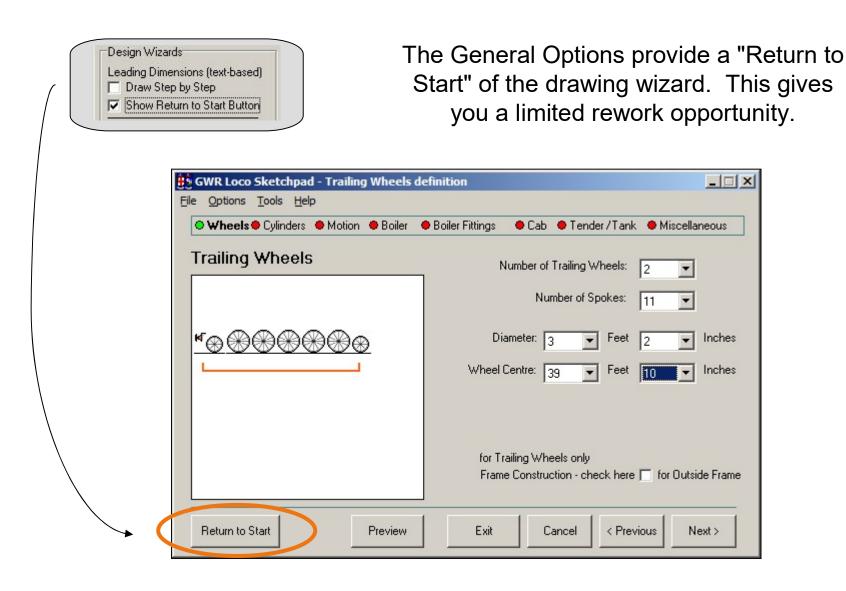
As not all information is available at this point, you may get some strange drawings that then adjust as more information is entered.



In this form, you enter data for the trailing wheels. Again, one important measure is the distance from the front of the loco to the first trailing axle centre line.

🛔 GWR Loco Sketchpad - Trailing Wheels o	lefinition
<u>File Options Tools Help</u>	
♥ Wheels♥ Cylinders ♥ Motion ♥ Boiler	● Boiler Fittings 👘 ● Cab 🔎 Tender / Tank 🔎 Miscellaneous
Trailing Wheels	Number of Trailing Wheels: 2
	Number of Spokes: 11
<mark>≝⊛⊛⊛⊛⊛⊛</mark>	Diameter: 3 💌 Feet 2 💌 Inches
	Wheel Centre: 39 Feet 10 Inches
	for Trailing Wheels only Frame Construction - check here 🥅 for Outside Frame
Preview	Exit Cancel < Previous Next >





You have a limited choice of frame construction at this point: you can edit this later from the Locomotive View.



The footplate can be raised from its default height - above the buffer beam. You can select a "curve" between the two levels, or a simple "drop".

🕽 Wheels 🔍 Cylinders 🍽 Motion 🔎 Boiler	🔴 Boiler Fittings 👘 🔴 Cab 🔎 Tender / Tank	Miscellaneous
Footplate	Raised Footplate:	Raised Footplate Yes No
	Inside Frame	<b>v</b>
	Footplate Height: 4 <b>•</b> Feet	7  Inches
	Front Start of Drop: 2 💌 Feet	8 💌 Inches
	Footplate Change:	Curve or Drop: - Curved C Drop
	Drop Footplate before Cab:	Drop before Cab C Yes O No

Passenger locomotives usually dropped the footplate level before the cab. Tank locomotives with raised footplates dropped the footplate after the cab door.



Size and position the locomotive cylinders. Two cylinder locos could have the cylinders inside the frame or outside the frame.

• Wheels • Cylinders• Motion • Boiler	Boiler Fittings     Cab      Tender / Tank     Miscellaneous
Cylinders	Number of Cylinders:   Number of Cylinders:
	Cylinder Diameter: 19 💌 Inches
M	Cylinder Stroke: 30 💌 Inche:
	Start of Cylinders: 3 💌 Feet 5 💌 Inches
	Cylinder Location
	Cylinder Location: O Inside
<b>⊌</b>	<ul> <li>Outside</li> <li>Inside and Outside</li> </ul>
18	Footplate Rise Over Cylinders: 6 Inche:

Some locomotives ("Grange", "Manor", 72xx Tank) had the footplate raised over the cylinders.



🛔 GWR Loco Sketchpad - Locomotive View	
<u>File E</u> dit <u>O</u> ptions <u>W</u> indows/Dialogs <u>H</u> elp	
ST CONTRACTOR OF CONT	
Where more information is needed for a component, this component is not drawn in full at this s	tage.
Locomotive data file is READ ONLY	
Elevation is set from Start Form only	

The frame, wheels and cylinders (the "engine") of the locomotive.



If you have outside cylinders, select the type of valve gear

	Type of Valve Gear:	<ul> <li>Stephensons</li> </ul>
		C Walshaerts
	Valve Gear Location:	Inside (Frames)
		C Outside
Preview	Exit Cancel	< Previous   Next :



GWR Locomotive Sketchpad

#### Standard or Non-standard Boiler

Wheels O Cylinders O Motion O B	oiler 🗢 Boiler Fittings 🛛 🍨 Cab 🗢 Tender / Tank 🗢 Miscellaneou
Boiler	Boiler: Boiler:
	Non-standard
	Diameter (Smokebox): 5 Feet 6 Inch
	- Diameter (Firebox): 6 💌 Feet 0 💌 Inch
L	Boiler Length: 14 💌 Feet 10 💌 Inch
	Boiler Pressure: 200 v pounds per square inch
ĸ	Boiler Pitch: 8 💌 Feet 11 💌 Inch
	Boiler Start: 7 🔻 Feet 5 💌 Inch



● Wheels ● Cylinders ● Motion ● Boiler Firebox/Smokebox	Boiler Fittings Cab Tender / Tank Miscellaneous
Note: measure firebox heights from	Height (at Boiler): 8 💌 Feet 0 💌 Inches Height (at Cab): 7 💌 Feet 9 💌 Inches Firebox Length: 10 💌 Feet 0 💌 Inches
main footplate level only.	Preview Firebox Smokebox Length: 6 💌 Feet 🚺 💌 Inches

Set boiler to a Non-Standard Boiler if you need to adjust the firebox dimensions



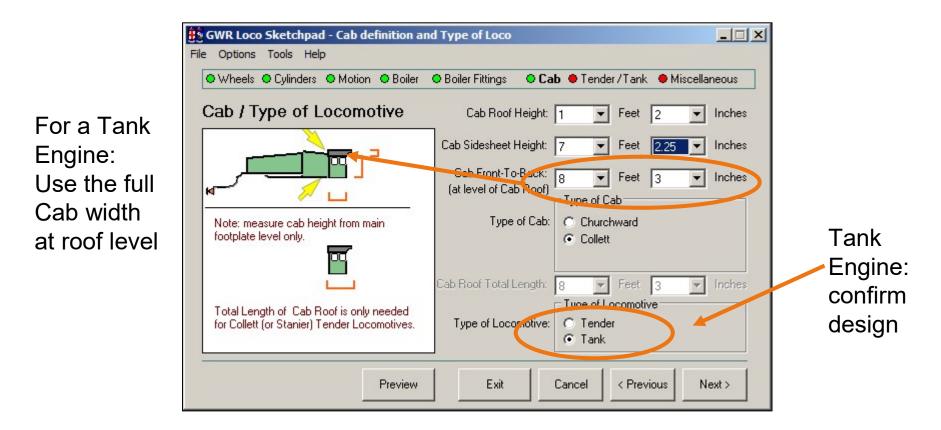
In the completed locomotive drawing, the chimney is placed in position based on internal rules and algorithms. You are able to set the dimensions of the chimney.

GWR Loco Sketchpad - Chimney and Boi	iler Fittings definition	<u>_     ×</u>
● Wheels ● Cylinders ● Motion ● Boiler	● Boiler Fittings ● Cab ● Tender / Tank ● Miscellane	eous
Chimney	Chimney Bottom Diameter (not incl. skirt):	nches nches
	Chimney Top Diameter (not including rim): 18 💌 I Note: Increase top width for a taper chimney Use Steam Collector in place of GWR Safety Valve 🗖	nches
	The positions of the Chimney and Dome (if there is one) are mined by other values that you have entered for the loco	
Preview	Exit Cancel < Previous Nex	(t >

Similarly, you can set the size of the dome (on parallel boilers) (or Steam Collector on coned boilers if this option is available)



You can choose a Churchward or Collett style cab (or a Stanier style cab if the option is available. For the Collett (and Stanier) style, you also set the length of the cab roof.



For a Tank Locomotive, the Cab Front-To-Back measurement is taken to be the Cab Front-To-Back measurement at the cab roof level.



GWR Loco Sketchpad - Tank definition File Options Tools Help	
● Wheels ● Cylinders ● Motion ● Boiler	● Boiler Fittings ● Cab ● Tender / <b>Tank ●</b> Miscellaneous
Tank	
TankTop	TankTop Height - Front: 4 💌 Feet 8 💌 Inches
Height at Cab	Height to Tank Bottom: 0 💌 Feet 0 💌 Inches
Note: measure tank heights from main footplate level only.	TankTop Height - Cab: 5 💌 Feet 7,75 💌 Inches
	Tank Start Position: 11 💌 Feet 10 💌 Inches
	Slope End Position: 10 💌 2 💌 Inches
Preview	Exit Cancel < Previous Next >

Tank measurements estimated



#### Bunker measurements estimated

GWR Loco Sketchpad - Bunker definition	
♥ Wheels ♥ Cylinders ♥ Motion ♥ Boiler	Boiler Fittings     Cab     Tender / Tank     Miscellaneous
Bunker	7
	Bunker Height: 5 💌 Feet 11 💌 Inches
	Bunker Width: 5 💌 Feet 3 💌 Inches Bunker Extension: Height: 37 💌 Inches
<b>C</b> <sup>2</sup>	Width: 8 Vinches
Ī	Type of Bunker: Cab Sidesheet:
	Cab front to cab door: 4  Feet  Inches
Preview	Exit Cancel < Previous Next >

For a Tank Locomotive, the Cab Sidesheet measurement is used to define the measurement to the leading edge of the cab door (in the data file, this is the Cab Front-To-Back measurement).



GWR Loco Sketchpad - File Tools Help	Livery definition	1			
• Wheels • Cylinders •	Motion OBoiler	Boiler Fittings	⊖ Cab	● Tender / Tank	Miscellaneous
Livery Details		_			
ÛŻ				Use livery GW	R Green 1928 💌
		Locomotive ha	ıs a full len	gth Running Plate	🔽 (footplate)
	Preview	Exit	C	ancel < Previ	ous Next >

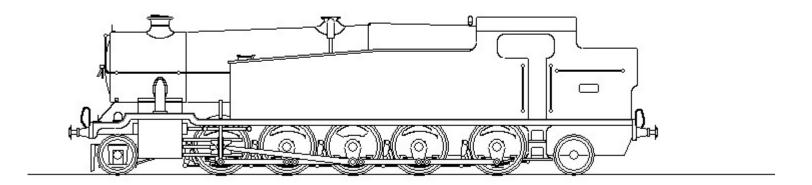
Select the livery.



GWR Loco Sketchpad - I	Draw Design	
Eile <u>T</u> ools <u>H</u> elp ♥Wheels ♥Cylinders ♥	Motion 🗢 Boile	oiler O Boiler Fittings O Cab O Tender / Tank O Miscellaneous
Design Details	1	ClickEdit Loco Data to modify
Class	Not known	LickEdit Loco Data to modify Edit Loco Data
Wheel Arrangement	2-10-2T	
Tractive Effort (approx) lbs		Options
Leading Wheels:		C Draw Design
Diameter	38.00	
Number of Spokes	11	Save Design as working drawing 2-10-2T
Wheelbase	0.00	
Driving Wheels:		O New Design
Diameter	55.00	
Number of Spokes	20	
Wheelbase axles 1 - 2	66.00	Progress: Save Locomotive Data
Wheelbase axles 2 - 3	66.00	
		Exit Cancel < Previous Next >

Check the dimensions and save your new locomotive design.



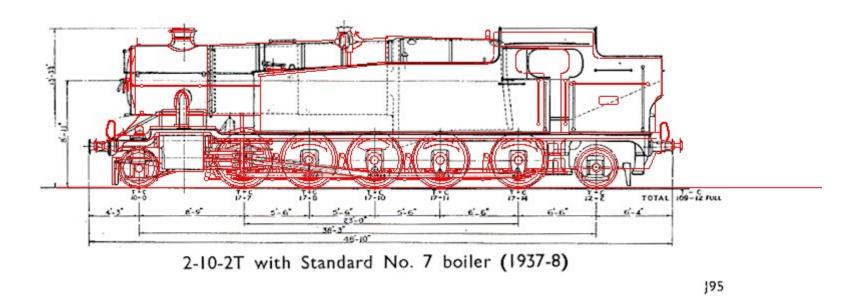


"Weight Diagram" (*compare with published pictures*)



GWR Locomotive Sketchpad

The sketch has been overlaid on the engine diagram published in the RCTS "Locomotives of the GWR", part 9



Still some adjustments to make ...



g GWR Loco Sketchpad - Locomotive View le Edit Options Tools Windows/Dialogs Help	1 Ma	ake changes to dimension
		2 Click <b>OK</b>
	WR Loco Sketchpad - Edit Current Locomotiv	e Data File
File	Edit Options Tools Windows/Dialogs Help	
Edit Loco Data	Class:	proposed 2-10-2T
	Cab:	
Tank: to cab door only	Style	Feet Inches
	-> Cab Front-To-Back	4 • 2 • OK
	Cab Height	7'3"
	Roof Height	1'2"
	Roof Length	7'11"
	Tank:	
	Start Position	12'1"
You see a warning	Tank Start Height	0' 0''
message when you	Tank Start Top	4' 8''
<b>č</b>	Slope End Position	22'10"
edit a locomotive	Slope End Height	5'11''
which is <i>not</i> part of		
GWR Loco Sketchpad		Exit Cancel OK

When all necessary changes are made, click **OK** on the Edit Loco Data form.



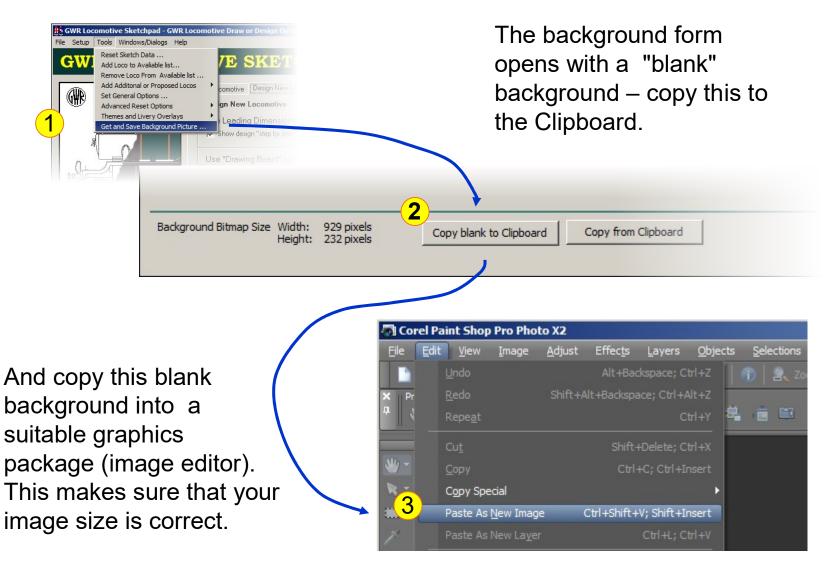
### You can add your own Backgrounds



The Great Western Society's Travelling Post Office vehicle forms a suitable background for a "Hall" class locomotive.

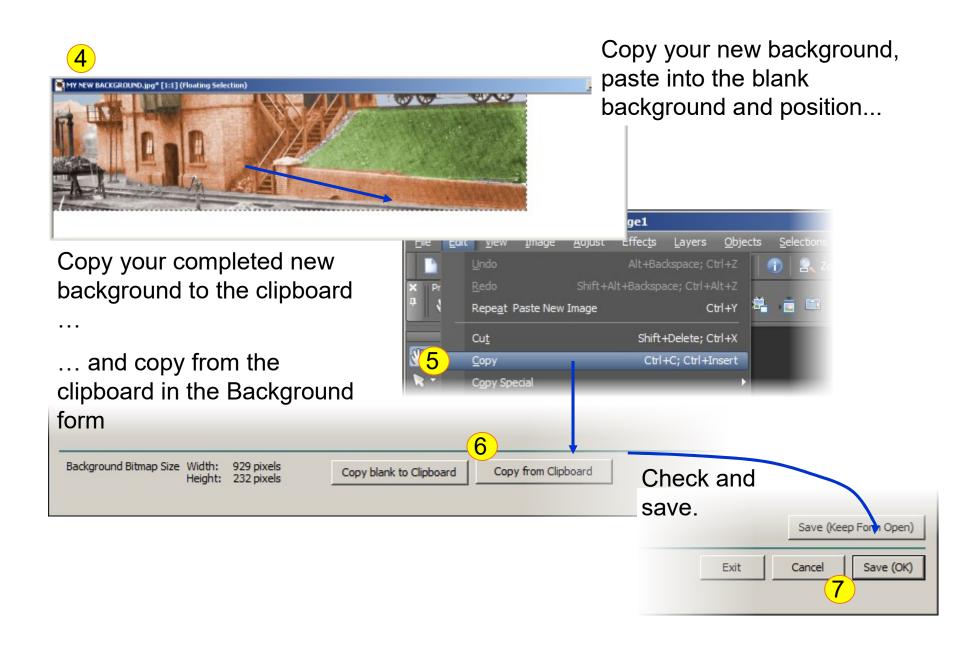


GWR Locomotive Sketchpad



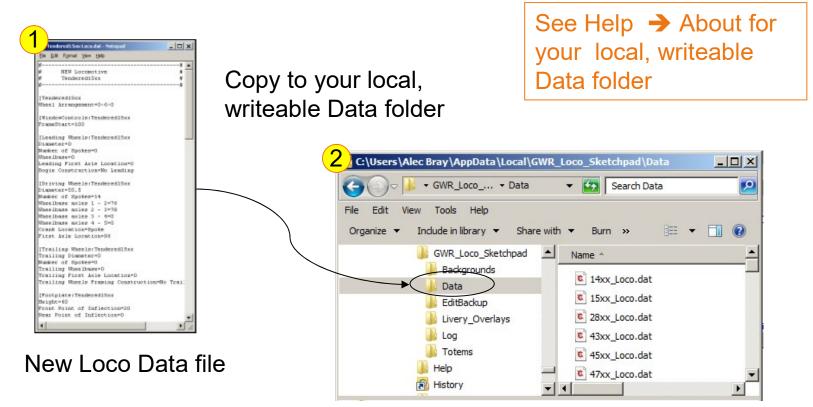
#### see next 🗲







## Add New Locomotive to View

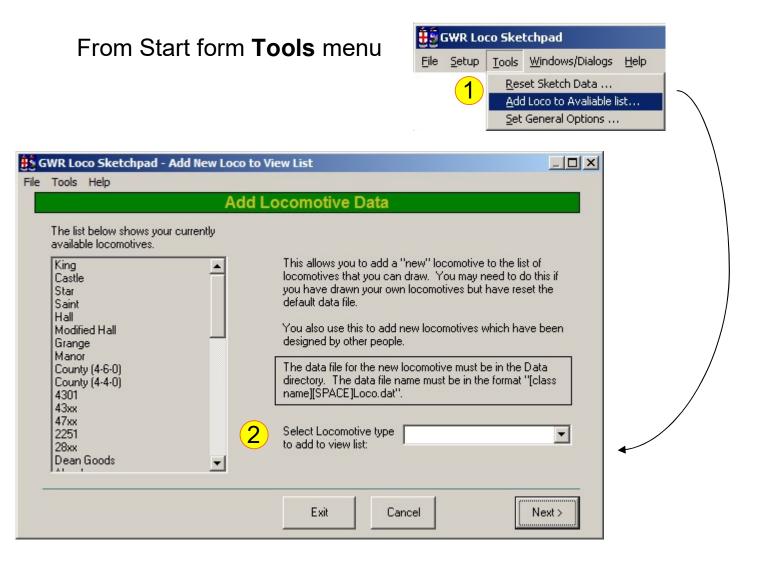


You can share locomotive data files with other users of GWR Locomotive Sketchpad



see next ->





Select new locomotive type or class from drop down list: click Next.



One way copy a locomotive data file is to use the **Copy to Clipboard** menu and paste into Notepad.

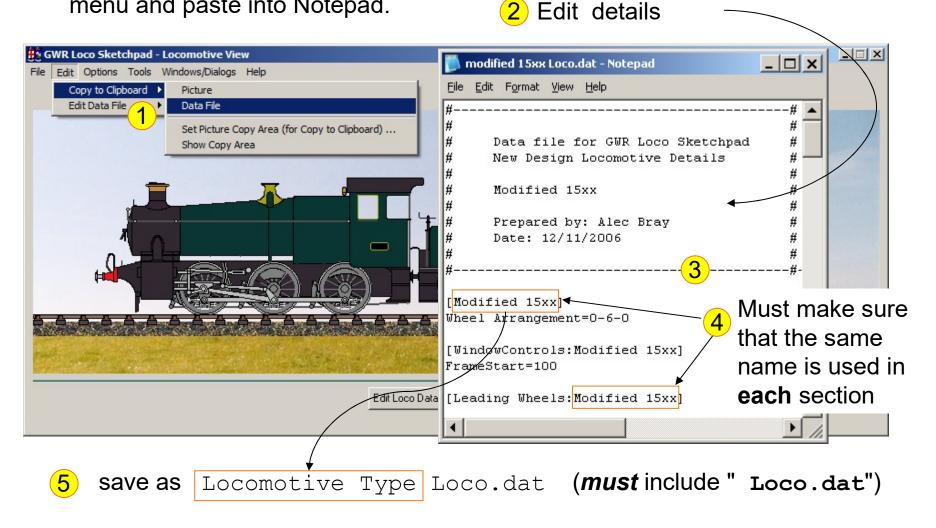


illustration taken from version 4.0.2



There are a number of run-time options that you can select.

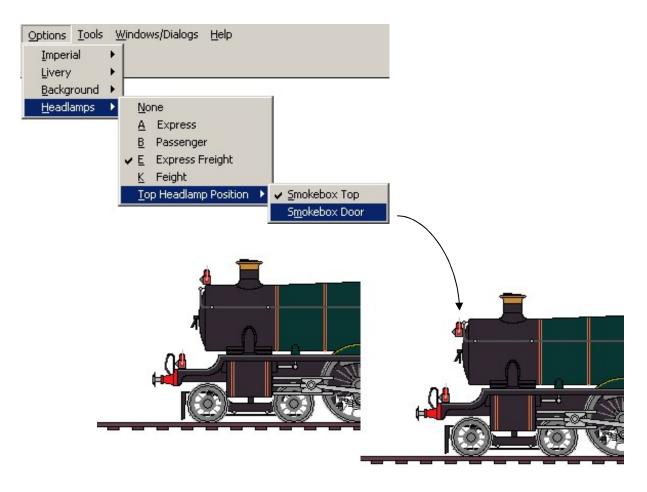
These depend on the locomotive type and the livery that you have chosen.



The 15xx Pannier Tank - but now with a small version of the Hawksworth tender.

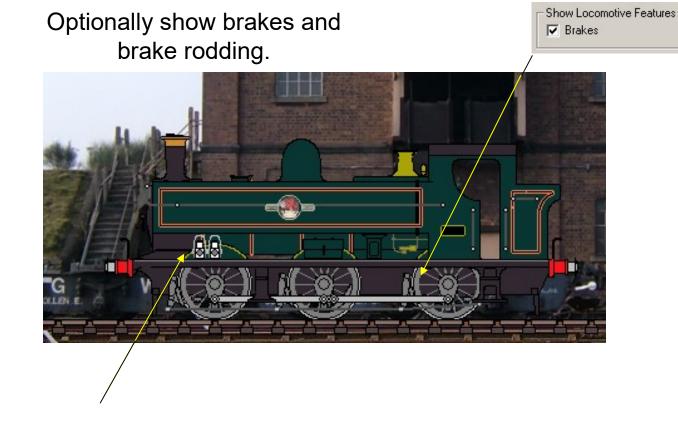
illustration taken from version 4.0.2





Add headlamps - change position of top headlamp. Red headlamps are provided for GWR liveries, white for BR liveries





Pannier Tank headlamps can be parked when they are not needed.

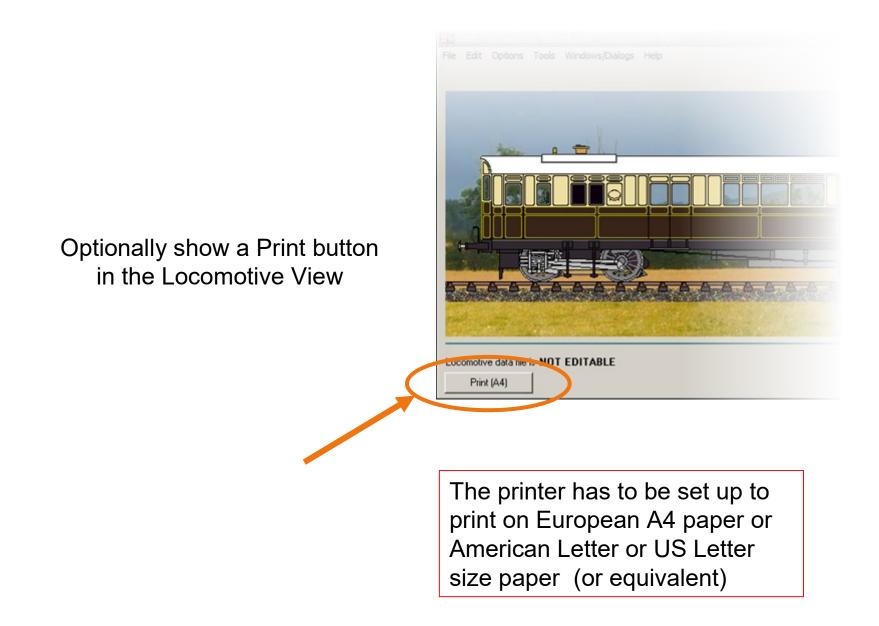




Optionally show a Home (or Starting) signal in the left or right elevations.

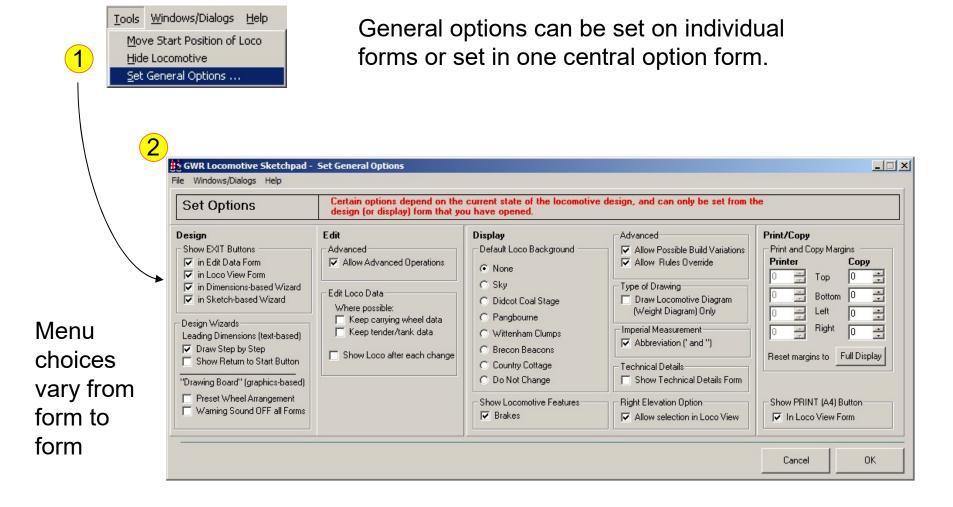








# **General Options**



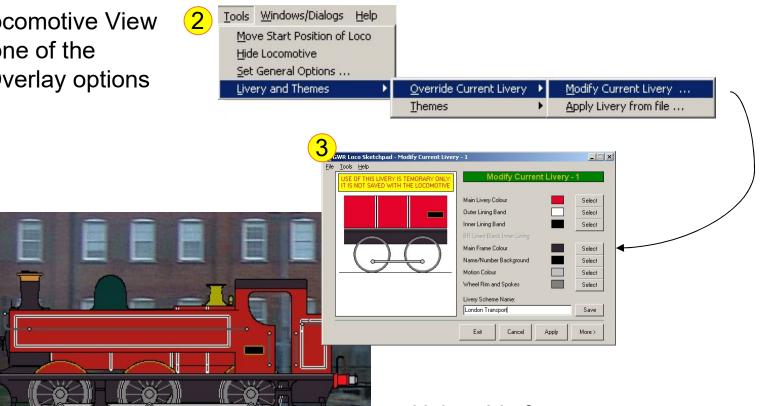
Some options are specific to an individual form and are not shown here.



If you have opted to Allow Advanced Operations



From Locomotive View select one of the Livery Overlay options



Using this feature, you can "repaint" your locomotive.

illustration taken from version 4.0.2



Themes allow you to apply

- Background
- Base Livery
- Livery Overlay ("repaint")
- Totem

in one operation

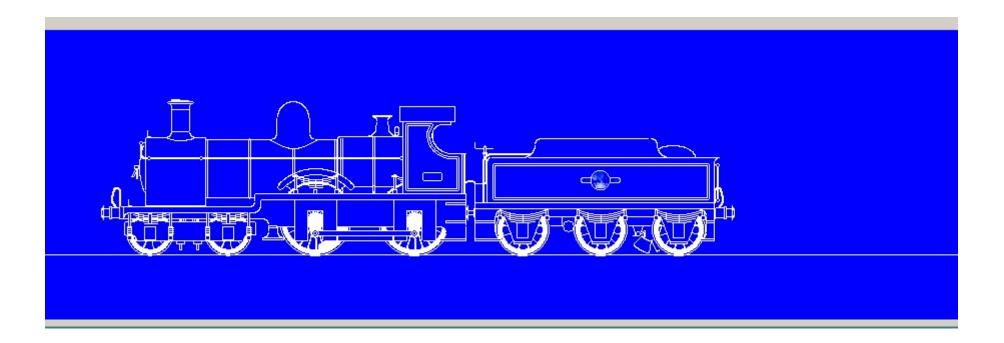
	😫 GWR Loco Sketchpad - Set Display Theme			
to apply	Eile Tools Help			
ay ("repaint")	Background Selected Frincipal Livery Indicators Main Livery Colour Outer Lining Band Inner Lining Band BR Inner Lining Main Frame Colour Name Background Totem used	Set Display Theme         Use Background from file         Didcot workshop.jpg       Select         Use Background instead of Ballast/Grass         Use Livery Style       GWR Green 1928         Use Livery Overlay         London Transport       Select         Totem: <ul> <li>Hide Totem</li> <li>Use Current Livery Totem</li> <li>Select Totem (use button)</li> </ul> Theme Name:         New Theme Name       Save		
		Exit Cancel Apply Preview		
$\overset{\text{\tiny (Hot}}{=} (H) \overset{\text{\tiny (Hot}}{=} (H) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}{=} (H) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}{=} (H) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}{=} (H) \overset{\text{\tiny (Hot}}{=} (H)) \overset{\text{\tiny (Hot}}$				

illustration taken from version 4.0.2



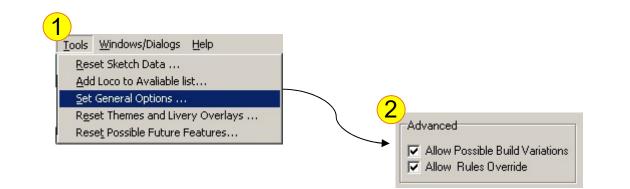
C THE

"Blueprint" is one of the supplied Themes.





# **Explore Possible Build Variations**



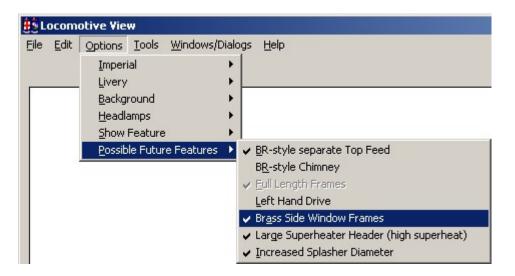
What if GWR Locomotive development had continued after nationalisation?

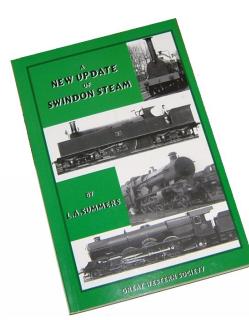
Some suitable books are shown here.



Apply possible future build variations.

Draw a "GWR" locomotive with features based on GWR experiments or features in use on other railways around the time of nationalisation.

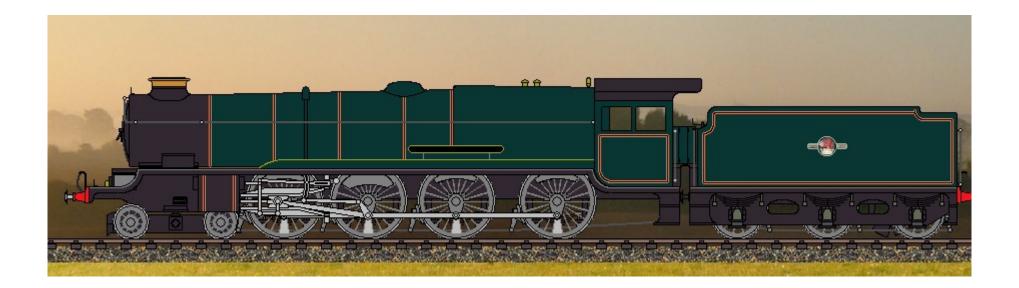




Options shown depend on other selections and settings for your locomotive.

For more information about possible GWR developments in locomotive design, please see L. A. Summers' book.





A possible development of Great Western locomotive design (based on suggestions by Les Summers: however, the cab is different (here using a Stanier design) as is the placement of the boiler fittings).

illustration taken from version 4.0.2



#### **Possible Build Variations ...**

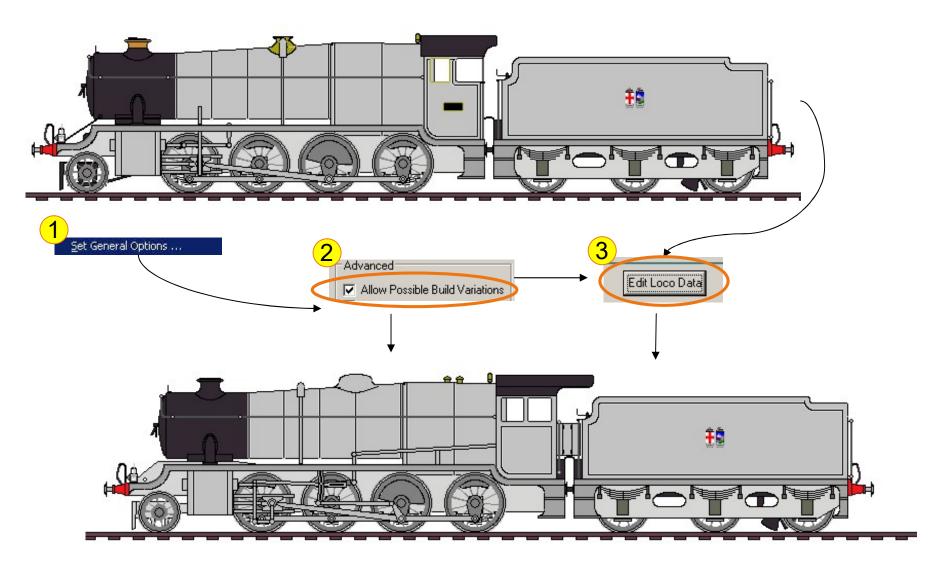
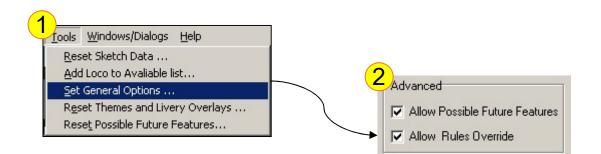


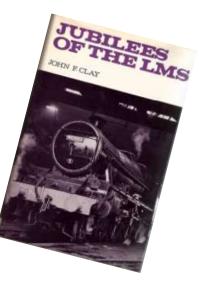
illustration taken from version 4.0.2



### **GWR Rules Overrides ...**



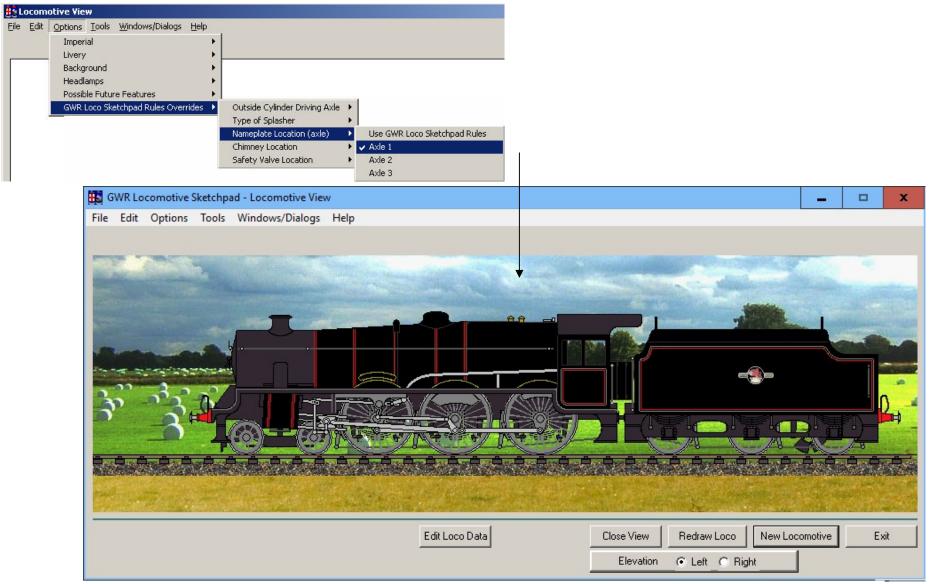
GWR-trained engineers moved to other railways, and took GWR design features with them.



Stanier went to the LMS.

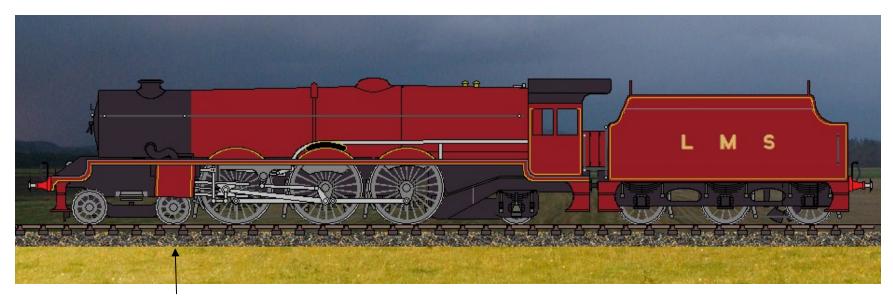


# **Using GWR Rules Overrides**





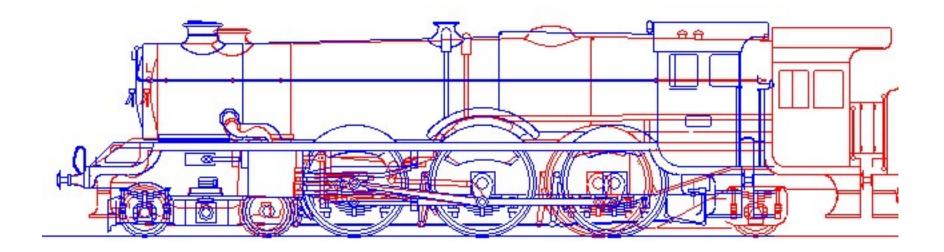
With Possible Future Features and GWR Rules Overrides enabled and appropriate features selected, a **very limited** range of Stanier "look alike" locomotives can be prepared for comparison with GWR locomotives.



The angle of inclination of the cylinders is set automatically.



#### **Locomotive comparisons**



A GWR King compared to an LMS Princess Royal - both drawn using GWR Loco Sketchpad



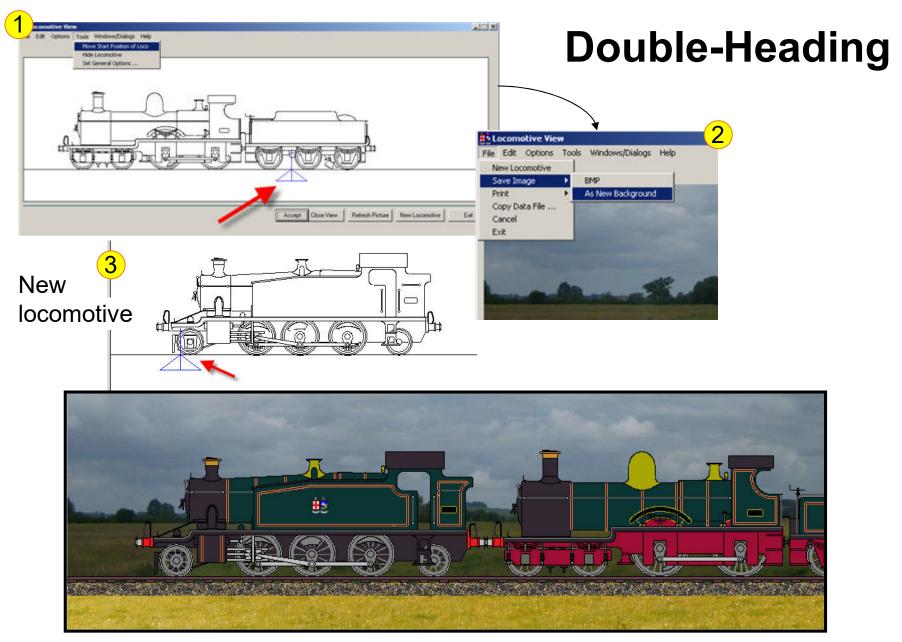


illustration taken from version 4.0.2

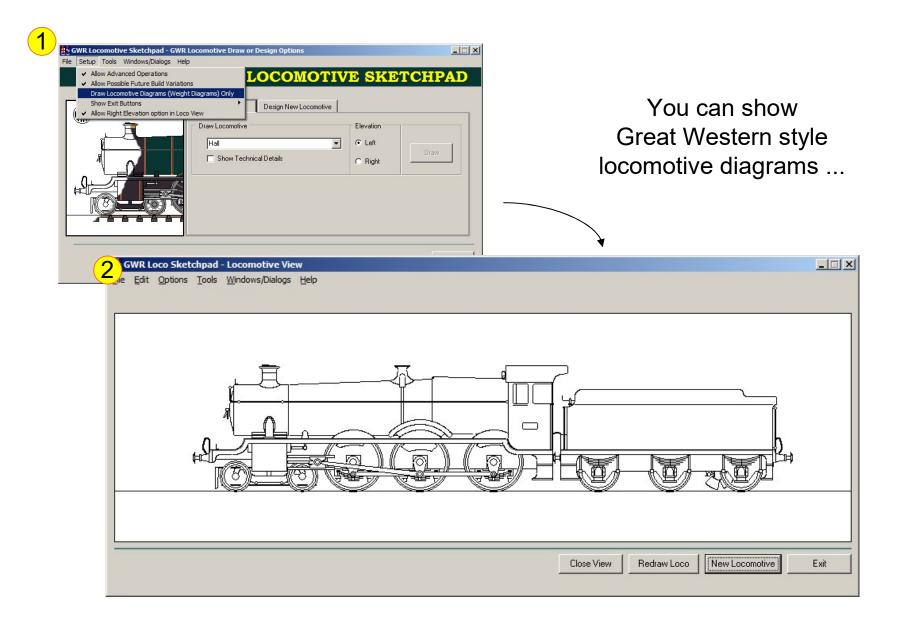


#### **Narrow Gauge**



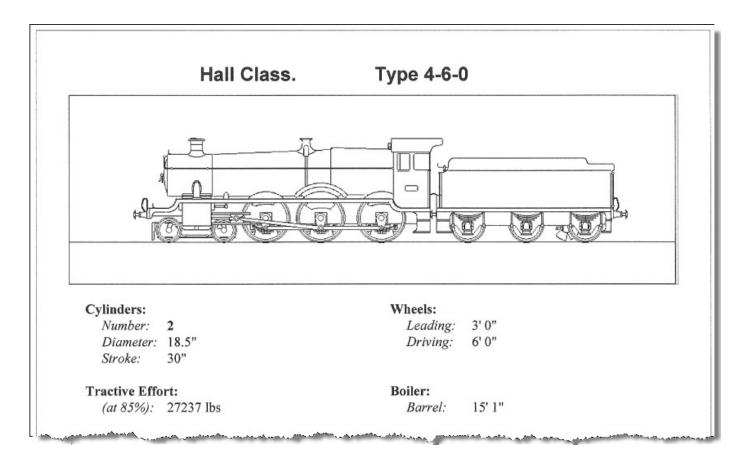
The Great Western built locomotives for the Vale of Rheidol narrow gauge railway.





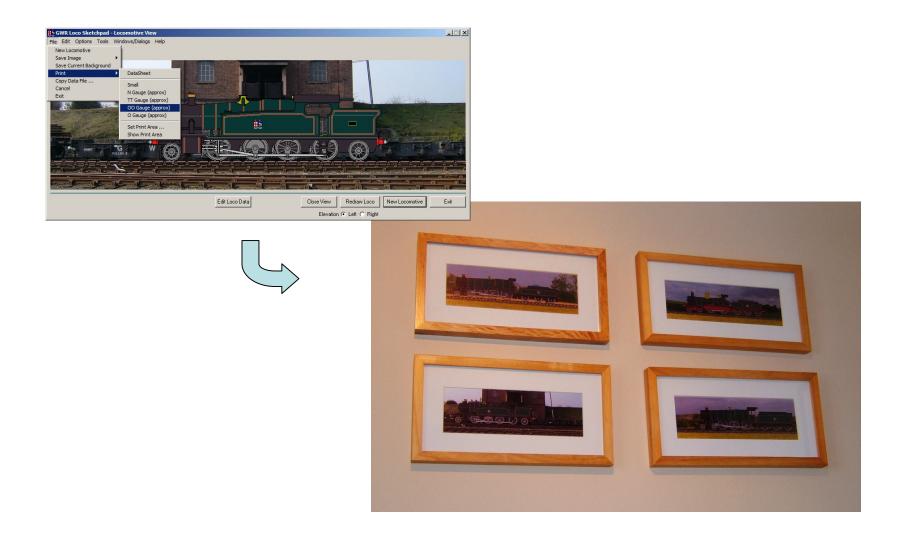


# ... and prepare locomotive data sheets ...





# Finally ... Why not frame your pictures?





### **Useful Books**

Chapman, W. G (... 1946) GWR Engines Names, Numbers, Types and Classes reprinted as: GWR Engines Names, Numbers, Types and Classes (1975) David and Charles (Publishers) Limited Newton Abbott ISBN 0715353675

Russell, J. H. ((1975) A Pictorial Record of Great Western Engines Volumes 1, 2 Oxford Publishing Company Oxford SBN 902888 30 7

The Railway Correspondence and Travel Society The Locomotives of the Great Western Railway Part One Preliminary Survey (1968) to Part Thirteen Preservation and Supplementary Information (1983) ISBN 0 901115 60 6 The Railway Correspondence and Travel Society

Slinn, J. N. (1978) Great Western Way Historical Model Railway Society Frome ISBN 0 902835 03 3

Summers, L, A. (2007) A New Update of Swindon Steam Great Western Society

Freezer, C. J. (1977) Locomotives in Outline Peco Publications and Publicity Beer ISBN 0 900586 46 X

