

1. History: The 6400 class were introduced in 1932, whilst the 7400 class followed in 1936, with a total of 90 being constructed. All forty of the 6400 class were fitted for auto-train working, and with their smaller driving wheels, were intended for the more steeply graded lines of the Welsh valleys and Cornwall, although they became more widespread in later days.

All of the 7400 class and the last ten of the 6400 class can be distinguished from the original thirty by the intersection of the cab/bunker which is square with no roof overhangs.

The fifty locomotives of the 7400 class were not auto-train fitted and had higher boiler pressure, increasing the tractive effort, but otherwise identical to the last ten of the 6400 class. They were more widely distributed and were found on branchline passenger, freight and milk traffic workings, as well as station pilot and shunting duties. Numbers 7430-7449 built after the war came out with the new top feed, which had begun to appear on earlier engines of both classes. Steps were put on the Fireman's side of the bunker from 6430 onwards and earlier engines brought into line by about 1945.

Last of class withdrawn: 7439 in 1965

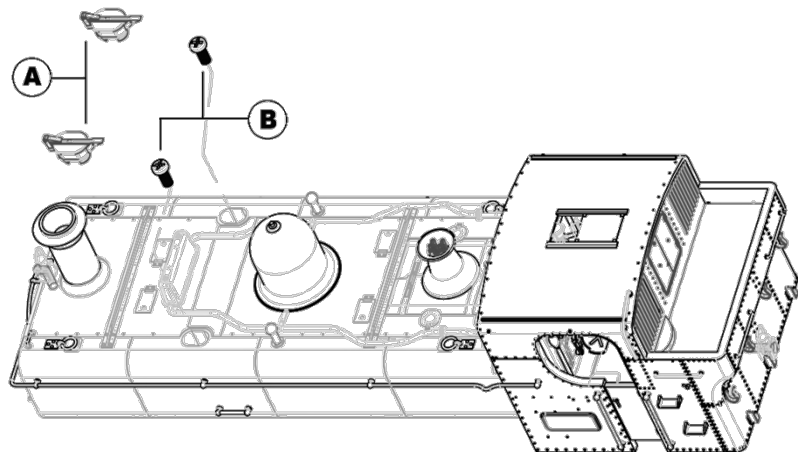
Preserved examples: 6412, 6430, 6435

2. Quick Start:

- DC (Analog) Operation:** No modifications are necessary and the model will operate on DC 'out of the box'.
- DCC Operation:** (DCC Ready version) DCC Decoder and speaker fitting are described in section 4., Factory fitted DCC and DCC sound is described in sections 5 & 6 respectively.
- Running in:** The model should be run at medium speed for 20-30 minutes in each direction. This can take place using either DC or DCC.

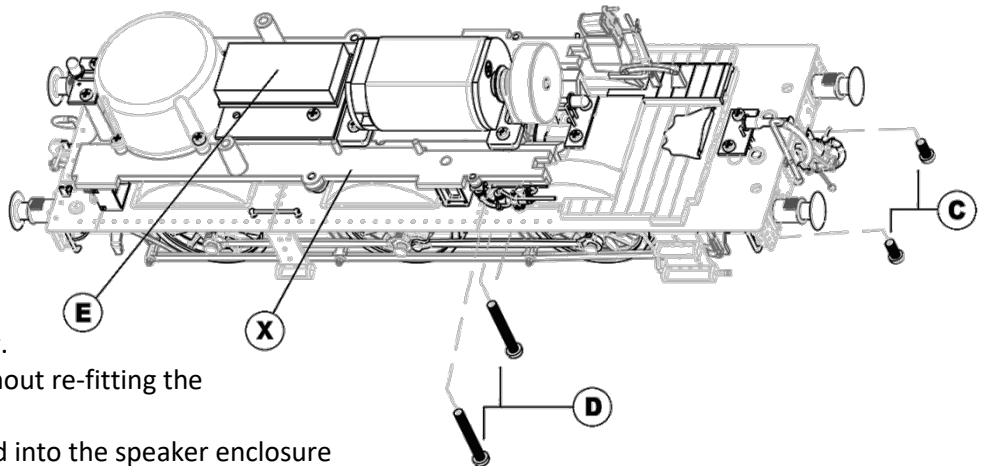
3. Body removal:

- Lift out the two water tank fillers (A).
- Remove both Phillips screws (B) located at the bottom of the filler cap aperture.
- On the underside of the model, remove the four screws labelled C and D.
- Lift the body away from the footplate.



4. DCC fitting: After body removal (section 3), the DCC blanking plate will be found mounted on the main PCB. Remove by lifting with a gentle rocking motion.

- Insert the decoder ensuring that the pins line up correctly.
- The model can be tested without re-fitting the body.
- A 31mm speaker can be fitted into the speaker enclosure (retained by 4 screws)



5. Maintenance:

- a. Periodically check and clean pickups and wheels (if interior lighting/sound is fitted). Should the lighting flicker excessively or sound break-up this is usually an indication of dirty wheels/pickup/track.
- b. After approximately 100 hours running apply a single drop of oil to the axle bearing surfaces. Overoiling will result in poor electrical pickup.
- c. The gearbox is sealed and requires no lubrication
- d. Do not allow oil to come into contact with the drive belt, but white grease only can be applied.

6. Spare parts: A range of spare parts are available from DCC Supplies (01905 621999)
www.dccsupplies.com.

64xx & 74xx Running in instructions.

Your new pannier tank locomotive has been constructed using high quality metal gears and running gear, which requires a short period of 'bedding in' before full performance will be realised. To get the best from your model, we recommend that after purchase the following steps are taken:

- 1) Lubricate all crank pins/coupling rod joints and the front driving wheel bearings sparingly, using a synthetic oil such as Dapol (from Dapol dealers) or Locolube (from DCC Supplies).
- 2) Operate the model at a medium speed for a minimum of 90 minutes in each direction. You will find that during this period the running speed increases and the operating noise will reduce as components and gears bed-in.

O Gauge 64/74xx Pannier

DCC sound functions

The detail's in the sound!

Thank you for purchasing the GWR 64/74xx Pannier locomotive with sound.

The sound project has been meticulously crafted from specially commissioned recordings of GWR Pannier no. 6435 on the Bodmin & Wenford Railway.

The sound project contains some unique features designed to enhance the driving experience and increase the authenticity.

There are a number of sounds that occur when a function button is pressed, and a number of sounds that are played automatically. These are detailed below and overleaf.

We hope you enjoy the added realism and enhanced driving experience that this will bring to your layout operations. To get the best realism and satisfaction out of your sound decoder, you will need to practice a little bit of driving!

GWR 64/74xx Pannier manual functions

F1	Sound fade in/fade out	Useful when the locomotive is going "off-scene" or into a tunnel, to simulate the effect of going into the distance. Conversely, on entering the scenic section, or when exiting a tunnel, this can be used to fade the sound back in. The overall volume is controlled via CV266.
F2	Short whistle	On pressing F2, a short whistle will be heard. You can adjust the volume by modifying the value in CV517. As delivered, the volume is at maximum (CV517=0), but this can be turned down by setting CV517 to a value between 1 and 254, inclusive, where 1 is quietest and 254 is loudest.
F3	Medium whistle	On pressing F3, a long and short whistle will be heard. You can adjust the volume by modifying the value in CV520. As delivered, the volume is at maximum (CV520=0), but this can be turned down by setting CV517 to a value between 1 and 254, inclusive, where 1 is quietest and 254 loudest.
F4	Coal shovelling	On pressing F4, the sound of the shovelling coal will be heard. The coal shovelling will continue until F4 is turned off. You can adjust the volume by modifying the value in CV523. As delivered, the volume is at -18db (CV523=32), but this can be turned up or down by setting CV523 to a value between 1 and 254, inclusive, where 1 is quietest and 254 loudest.
F5	Injector	On pressing F5, the sound of the water injector will be heard. This sound will continue until F5 is turned off. You can adjust the volume by modifying the value in CV526. As delivered, the volume is at -12db (CV526=64), but this can be turned up or down by setting CV526 to a value between 1 and 254, inclusive, where 1 is quietest and 254 loudest.
F6	Ejector (Blower)	On pressing F6, the sound of the ejector will be heard. This sound will continue until F6 is turned off. You can adjust the volume by modifying the value in CV529. As delivered, the volume is at -12 db (CV529=64), but this can be turned up or down by setting CV529 to a value between 1 and 254, inclusive, where 1 is quietest and 254 loudest.
F7	Brake application/release	When F7 is pressed, the sound of the brakes being applied will be heard and at the same time, the working brake (if RealDrive is active) will be applied. When F7 is pressed again (F7 turned off), the sound of the brakes being released will be heard and at the same time the working brake (if RealDrive is active) will be released.

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DCC sound functions

F8	Buffer clash	On pressing F8 with the locomotive stationary, the sound of buffering up will be heard. BY pressing F8 whilst the locomotive is moving, you can 'pre-select' the buffer clash to play the instant that the locomotive comes to a halt. You can adjust the volume by modifying the value in CV989. As delivered, the volume is at maximum (CV980=0)), but this can be turned down by setting CV980 to a value between 1 and 254, inclusive, where 1 is quietest and 254 loudest.
F9	Light engine mode	With F9 ON, lighter chuffs will be heard and at the same time, the inertia will be reduced to simulate a lightly loaded engine or train. CV390 can be used to determine to what extent the inertia is reduced. CV390 affects Both acceleration and deceleration
F10	Firebox door open/close + fire 'crackle'	On pressing F10, the sound of the door opening will be heard, followed by the crackling sound of the fire. This crackling sound will continue until F10 is turned off. In addition, the firebox flicker effect will be seen. When F10 is turned off the sound o
F11	Safety valves	On pressing F11, the sound of three safety valves will be heard until F11. You can adjust the volume by modifying the value in CV544. As delivered, the volume is at maximum volume (CV544=0), but this can be turned down by setting CV544 to a value between 1 and 254
F12	Manual draincocks	As well as the automatic draincocks, F12 can be used to turn this effect on. The effect will be heard until F12 is turned off. You can adjust the volume by modifying the value in CV544. As delivered, the volume is at maximum volume (CV584=0), but this can
F13	Coupling up/uncoupling	On pressing F13, the sound of the coupling being placed on the hook will be heard. On pressing F13 again (F13 turned OFF), the sound of uncoupling will be heard. You can adjust the volume by modifying the value in CV550. As delivered, the volume is at 91
F14	Coach door slams	On pressing F14, the sound of passenger carriage doors being closed will be heard. These will continue playing until F14 is turned OFF. You can adjust the volume by modifying the value in CV556. As delivered, the volume is at maximum (CV553=0).
F15	Flange squeal	On pressing F15, if the locomotive is moving, the sound of wheel flanges squealing be heard . This will continue playing until F15 is turned OFF or the locomotive becomes stationary. The sound heard will be different for light engine (F9) being ON or OFF. You can adjust the volume by modifying the value in CV981 for light engine flange squeal or CV982 for train flange squeal. As delivered, these are set at CV981=0 and CV982=64.
F16	Guard's whistle	On pressing F16, the sound of the Guard's whistle will be heard. You can adjust the volume by modifying the value in CV559. As delivered, the volume is at a value of 181.

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DCC sound functions

Automatic functions	
Brake squeal	The brake squeal will be played when the speed of the locomotive drops below the threshold AND the locomotive is decelerating AND if RealDrive is enabled, the brake is ON (F7 ON) The threshold can be set via CV287 in order to reduce or increase the amount of brake squeal. As supplied CV287 is a value of 20.
Different chuff intensities.	There are 3 chuff intensities on this sound project. Heavy chuffs will be heard when the locomotive is accelerating. Lighter chuffs will be heard when the target speed is reached. On deceleration, no chuffs are heard. With F9 ON, even lighter chuffs are heard.

Other useful CVs		
No	Purpose	Comment
3	Acceleration rate ('heavy' engine (F9 OFF))	As supplied this is set to a value of 40. A higher value gives a slower acceleration. A lower value gives more rapid acceleration.
4	Deceleration rate (brake OFF)	As supplied this is set to a value of 25. A higher value gives slower deceleration. A lower value gives more rapid deceleration.
349	Deceleration rate (brake ON)	As supplied this is set to a value of 20. This gives the locomotive keen brakes! A higher value will give more gentle braking.
266	Overall volume	As supplied, this is set to a value of 64. A higher value will increase the volume whilst a lower value will decrease the volume. The recommended maximum is around 100.
267	Chuff synchronisation	As supplied this is set to a value of 92. As your model locomotive is run in, you may find it necessary to alter this to achieve close synchronisation between the sound of the chuffs and the wheel revolutions. There should be 4 chuffs per wheel revolution.

The 'RealDrive' Experience

The driving experience can be enhanced by activating '**RealDrive**'. This changes the set up of the driving characteristics, such that you will need to apply the brake in order to bring the locomotive to a controlled stop – simply closing the throttle will not suffice!

Explanation of 'RealDrive': In this mode, you feel you really are driving the engine; assuming the locomotive (train) is travelling at a medium speed as the regulator is closed (speed step 0) the locomotive will continue to coast for some considerable distance, slowing gradually. Applying the brake using F7 will bring the model to a stop. The braking speed can be adjusted by changing CVs as below.

- When F7 is ON the brake is ON. When F7 is OFF, the brake is OFF.
- The braking intensity can be altered via CV349. Some users prefer sharper brakes, which allows several short applications to bring the locomotive to a controlled stop (if possible set F7 on your DCC system to 'momentary' operation). Other users may prefer a gentle brake (use a higher value in CV349) so that only a single application of the brake is needed to bring the locomotive to a halt. CV 349 factory setting is 50.
- **Note:** If the brake is left ON, the locomotive will not accelerate. This means that if it is stationary and the brake is ON when the regulator is opened, the locomotive will not move.
- **Note:** The brake will not 'win' over the regulator. This means that if the brake is applied whilst the regulator is open it will continue to run at the current speed.

To activate 'RealDrive' set CV4 to 254, and CV309 to 7.

To de-activate 'RealDrive' set CV4 to 25, and CV309 to 0. These are the factory settings