

1901

# BURRELL

COMPOUND TRACTION ENGINE

OLD DUCH

Registration No. AF 4393  
Works No. 2417



**1:16**  
SX-16001

3D-PRINTED  
MODEL KIT

Builder's Guide



# MEET THE DESIGNERS

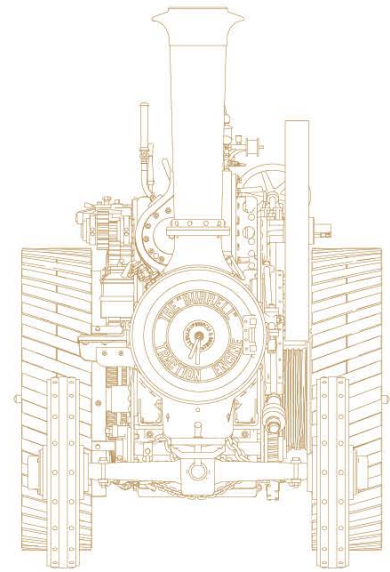
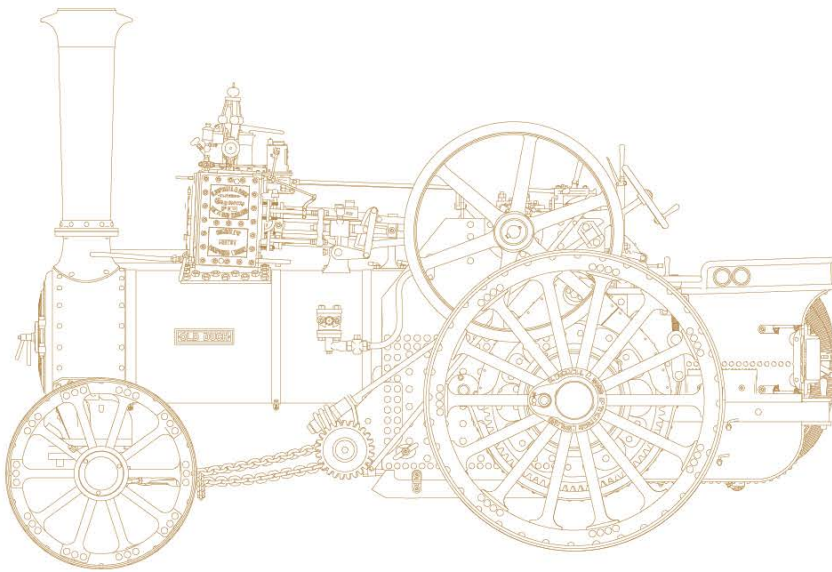
David and Amanda Jones are an experienced husband-and-wife design team. David, an aircraft mechanical technician, handles the 3D scanning and digital engineering, drawing on decades of kit building and design experience.

Amanda is a competitive, award-winning modeller and published photographer with a relentless eye for detail and historical accuracy.

This Traction Engine kit began as a passion project in 2025, designed across borders while David was working abroad. It combines David's innovative 3D workflow with Amanda's skilled 3D sculpting, test building and quality assurance.

Together, they have created a model that balances intricate engineering with artisan authenticity.





## HISTORY

"Old Duch" is a 6 NHP Burrell Single Crank Compound traction engine. Its engine serial number is 2417. It is an early example of the type, being built in 1901 by Charles Burrell & Sons at St Nicholas Works in Thetford located in the county of Norfolk.

The engine's distinctive single-crank compound system was developed by Frederick Burrell. The smaller high pressure piston and larger low pressure piston combine at the top of the boiler to drive one crankshaft. This asymmetric cylinder block is an iconic feature of these engines.

This particular engine is one of the earliest of its type to survive and there are a number of features that set it apart from later iterations of that model. Burrells are renowned for their lack of standardisation and this one is no exception. It differs greatly from later engines of the same type. Most notably the foot plate entrance is on the left, rather than the right, which was typical of engines only a few years younger. It also has a distinctive brake, which acts directly onto the teeth of one of the large drive gears.

This braking method is not regarded by the current owners as being that effective. It did not feature in later engines of the same model. In fact, at some point during the mid 20th century up to about the 1980's. This engine featured a flywheel brake modification, which no doubt improved handling. This was removed when the engine was restored to represent its original appearance.

The paint scheme is representative of how it would have been during its working life. The main colour is 'Burrell Green', a very distinctive dark shade specific to Burrell engines. The wheels are 'Burrell Chocolate', a dark brown. This striking combination was a standard paint scheme on these agricultural engines in this time period.

These engines were used extensively for threshing and sawing. This particular engine spent its working life at a saw mill called Battets of Stoke Climsland in Cornwall, England.

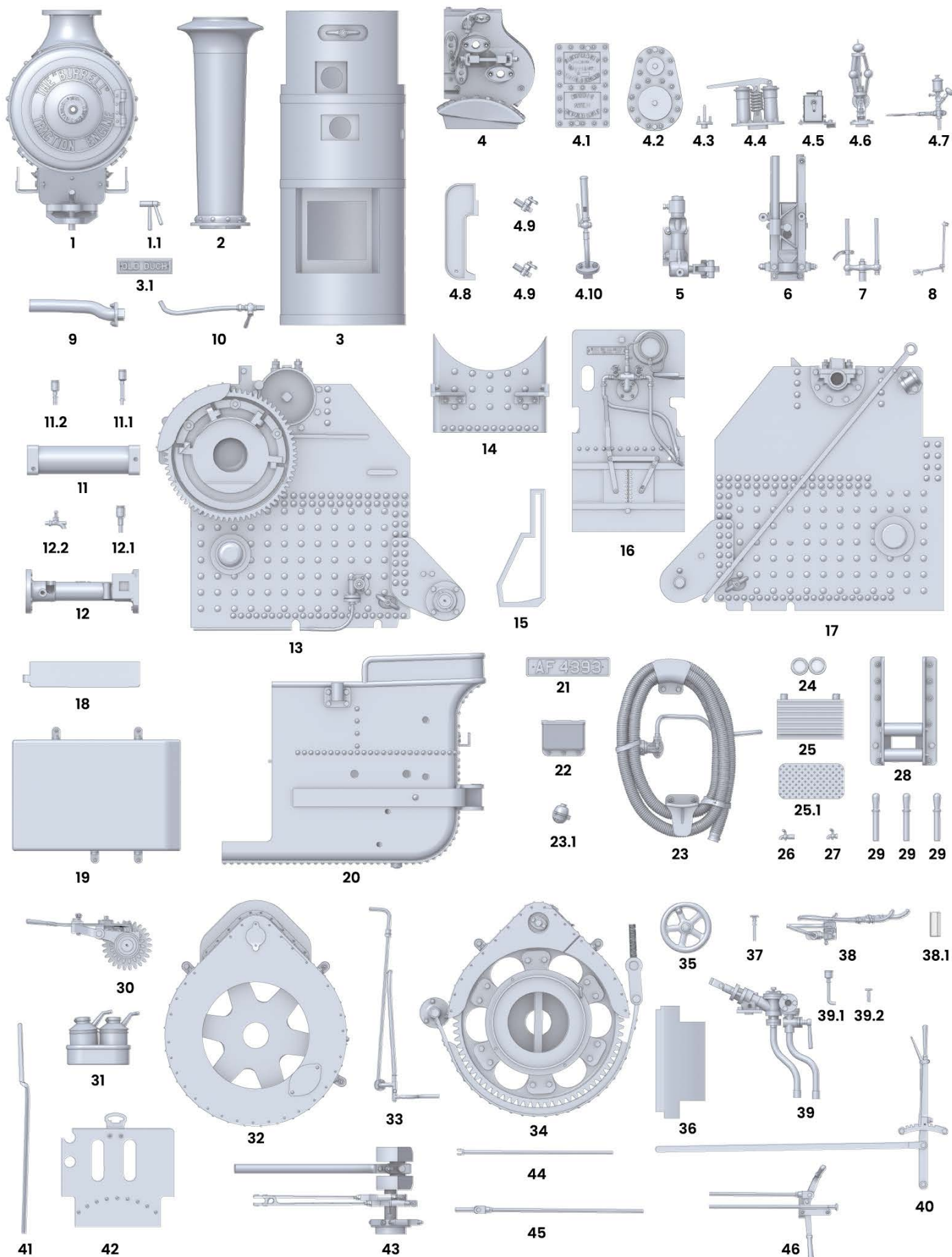
Traction engines in the UK began to acquire road number plates following the Motor Car Act 1903, which introduced mandatory registration and licensing for motor vehicles using the public roads.

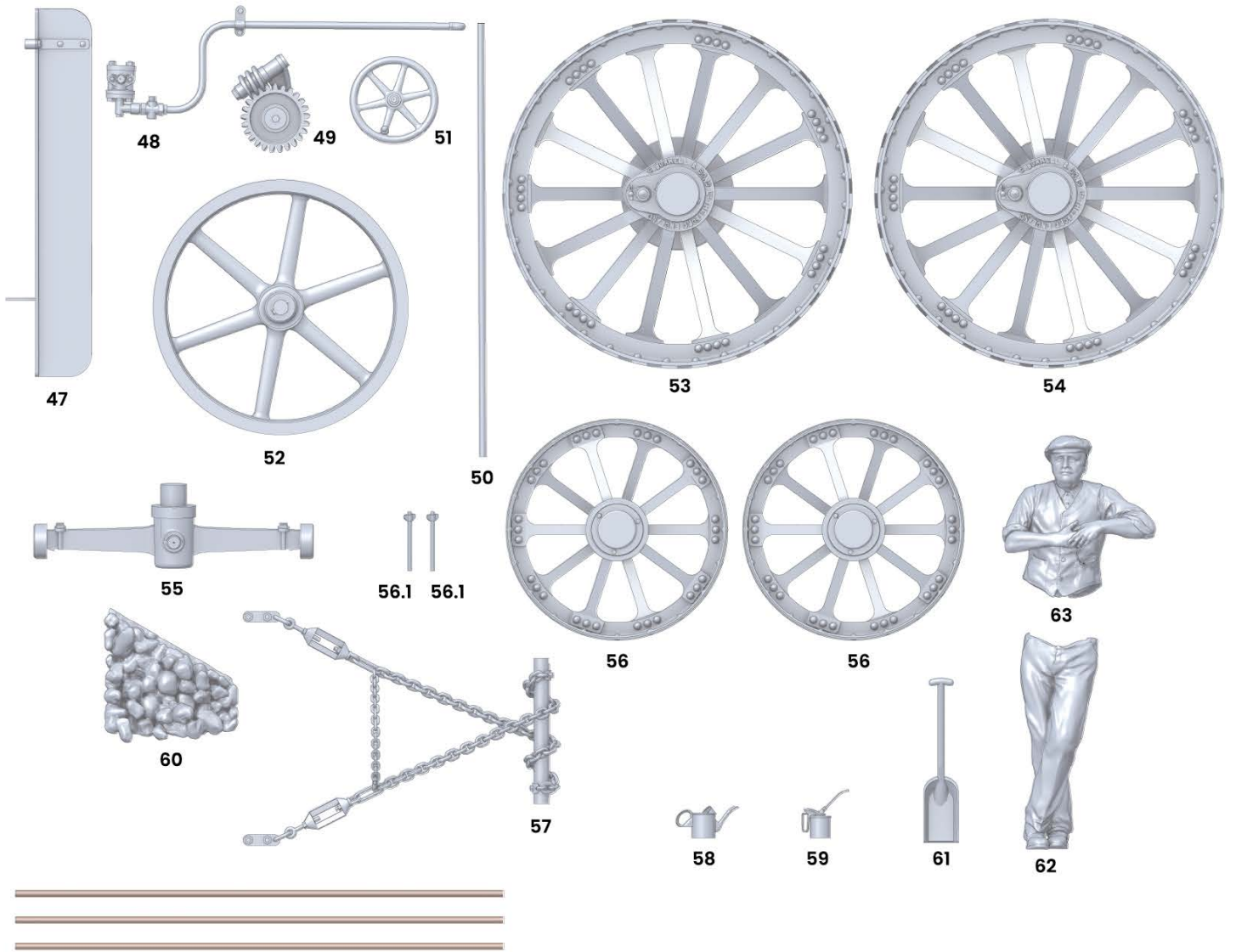
The engine carries a UK road registration plate number and from 1921 was obliged by law to display paper tax disks. Both of these are in the kit and are optional parts depending on the time period you wish to depict this engine from.

This engine was restored to its current condition by Ian Holt and was featured in the popular 1990's UK television series 'Heartbeat', set in the rural Yorkshire of the 1960's.

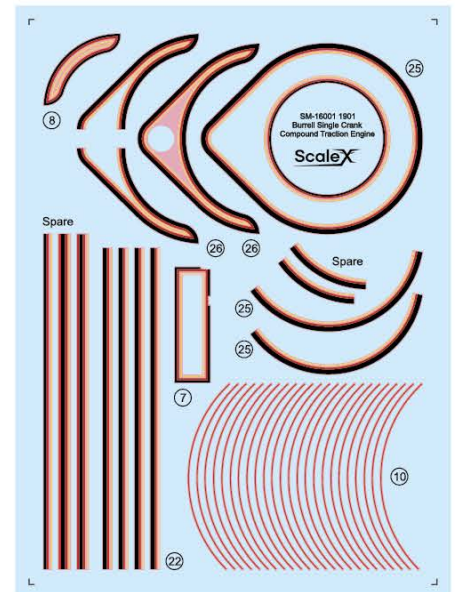
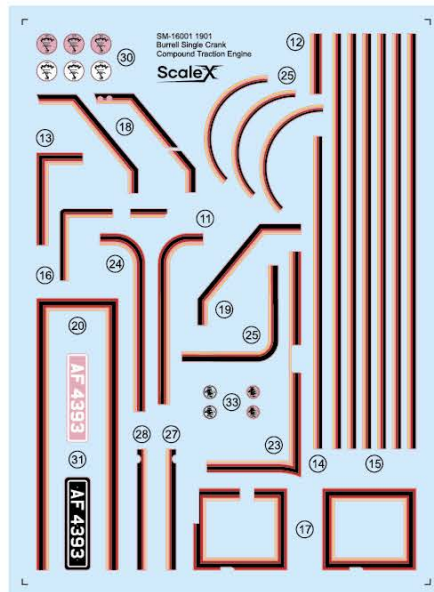
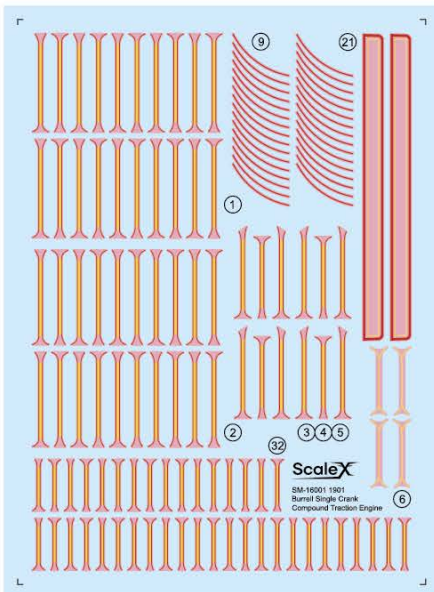
It currently resides in Yorkshire and can be visited at many UK Steam Rallies, which celebrate these wonderful engines.

# KIT CONTENTS





Copper Wire



## SYMBOLS USED IN INSTRUCTIONS



Section assembled in the step indicated by the number



Number of identical parts



Shape or bend



Decal

# GETTING STARTED

## Thank You for Choosing SteamX

This highly detailed 3D printed resin scale model kit was developed with a focus on historical authenticity, fine craftsmanship, and faithful representation of the original engine.

We recommend carefully reviewing the instructions and familiarising yourself with the parts before beginning assembly.



### Safety notice

Resin dust may be hazardous to health. Assemble the model in a well-ventilated area and avoid inhaling dust generated during sanding or cutting. Wet sanding and the use of a protective mask are strongly recommended.



This product is a scale model kit intended for experienced modellers and is not a toy.

Contains small and delicate parts. Keep away from children under 3 years of age.



Recommended for modellers aged 14 and above.

## Before You Start

Ensure you have the necessary tools before beginning assembly:

- nippers
- a sharp hobby knife
- tweezers
- sanding tools
- a JLC-style micro saw
- and cyanoacrylate (CA) glue, preferably gel type.

Handle small and delicate parts with care. Most support structures are designed to be removed by hand with minimal effort; however, the use of hobby tools such as nippers or a sharp hobby knife is strongly recommended for clean and safe removal.

Some larger components feature more substantial support structures required to preserve dimensional accuracy during the printing process. Their removal may require additional time and patience. Work carefully to avoid damaging fine details.

Always test-fit parts before gluing. Certain larger components may require minor adjustment due to the nature of resin materials and the manufacturing process.

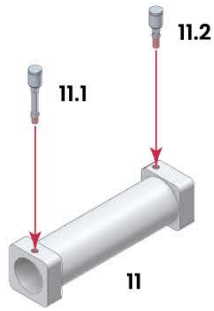
# WALKAROUND PHOTOS



Scan the QR code to access the complete high-resolution walkaround archive of "Old Duch" AF 4393 from the personal collection of Amanda and David Jones.

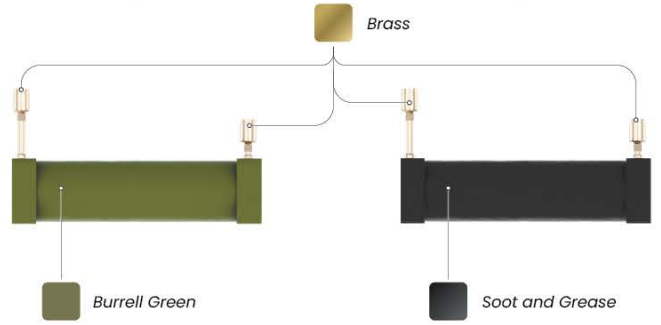


# 1 Rear Axle Center Section

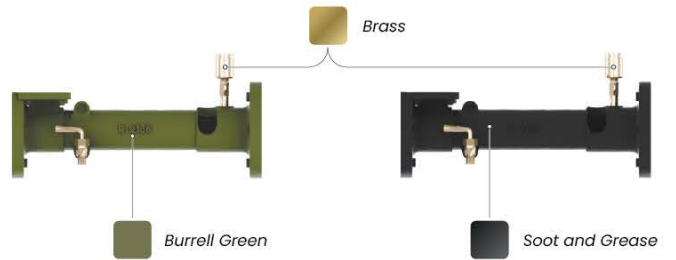
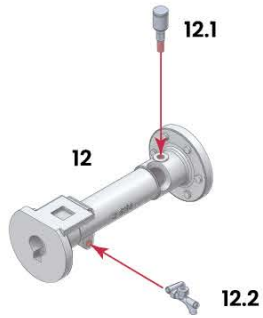


COLOUR SCHEME A

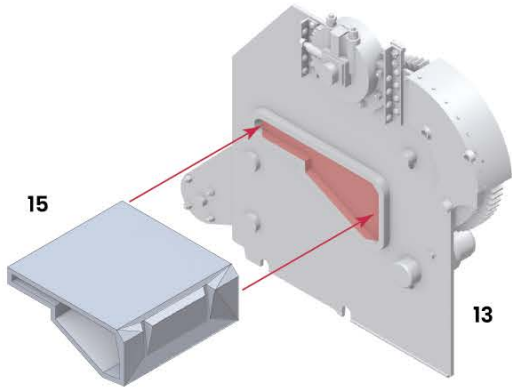
COLOUR SCHEME B



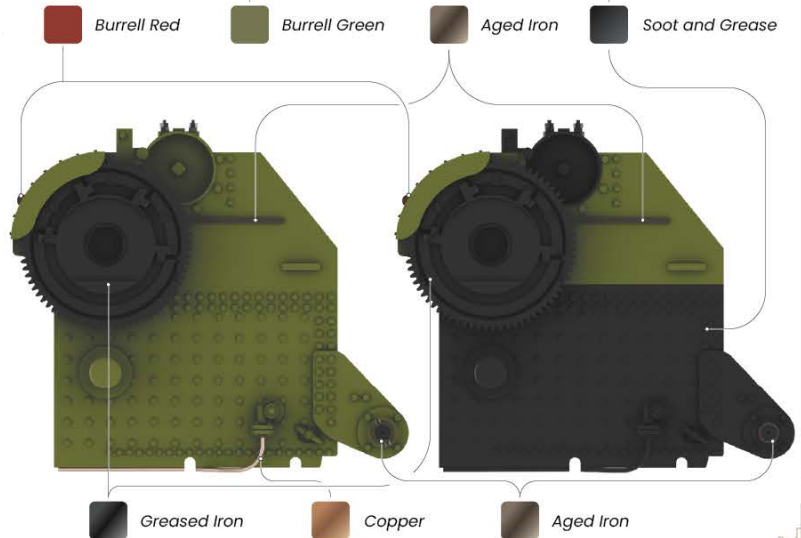
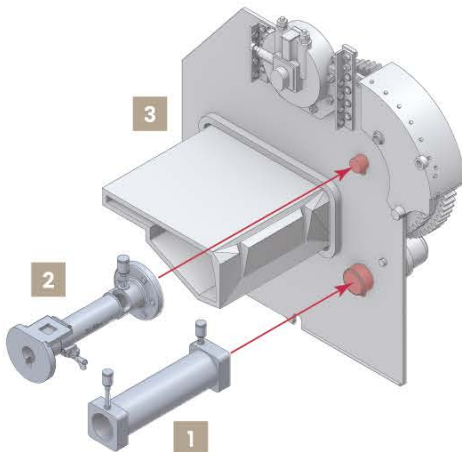
# 2 Countershaft



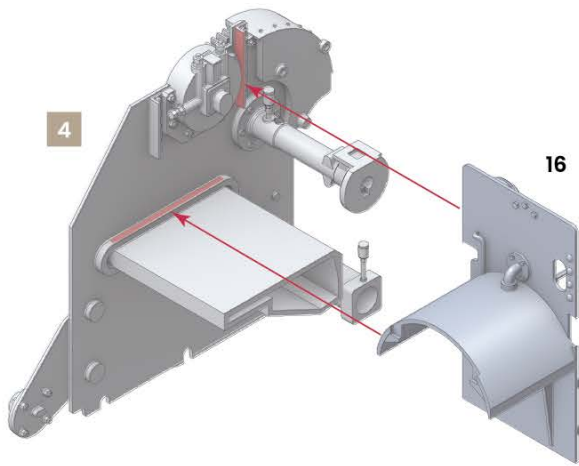
# 3 Right-Hand Firebox Side Plate



# 4

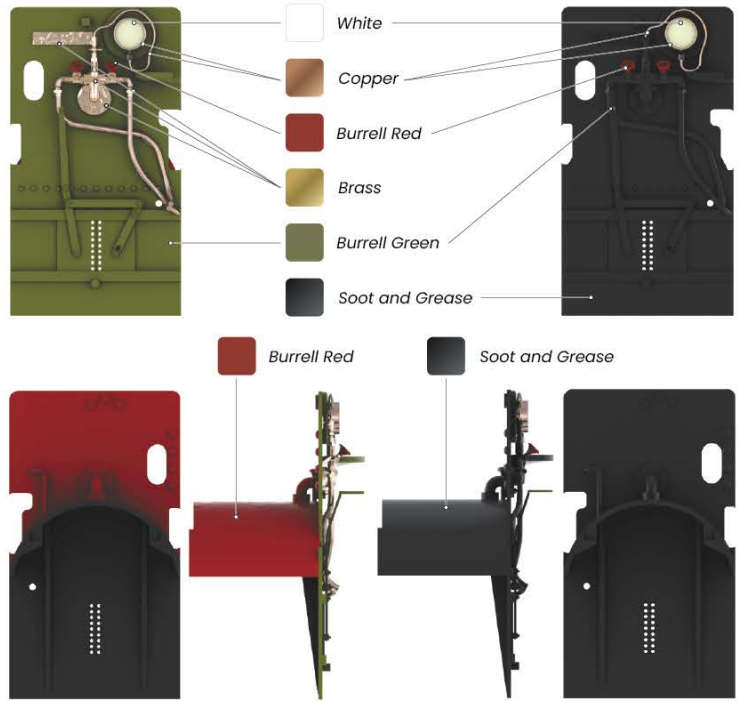


## 5 Firebox Back Plate

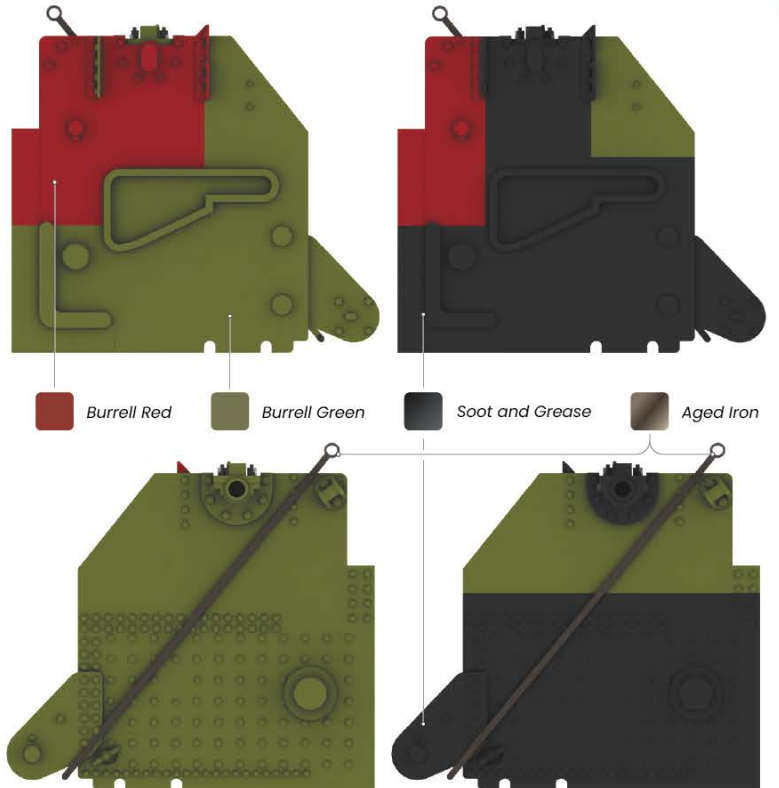
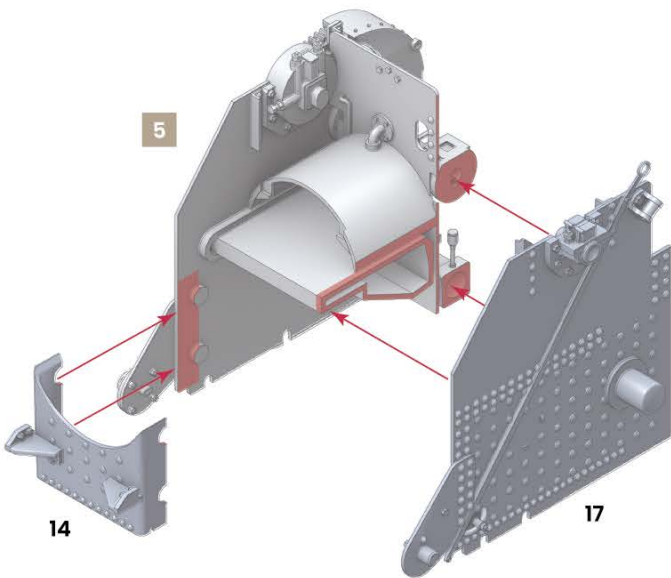


COLOUR SCHEME A

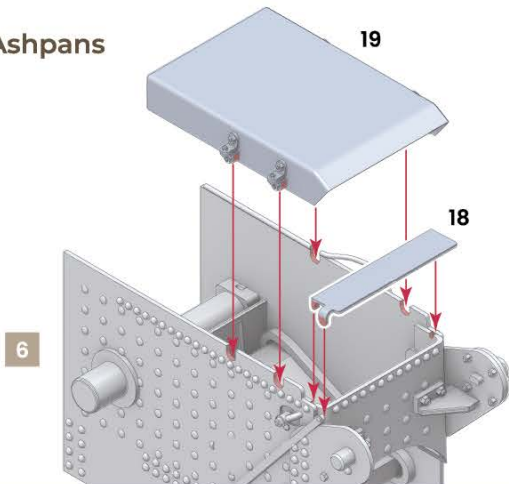
COLOUR SCHEME B



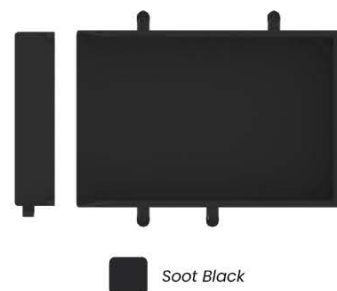
## 6 Left-Hand and Front Firebox Side Plates



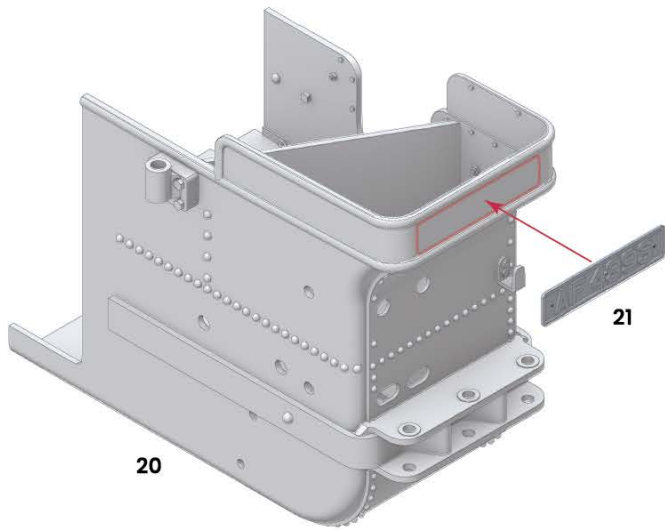
## 7 Ashpans



COLOUR SCHEMES A & B

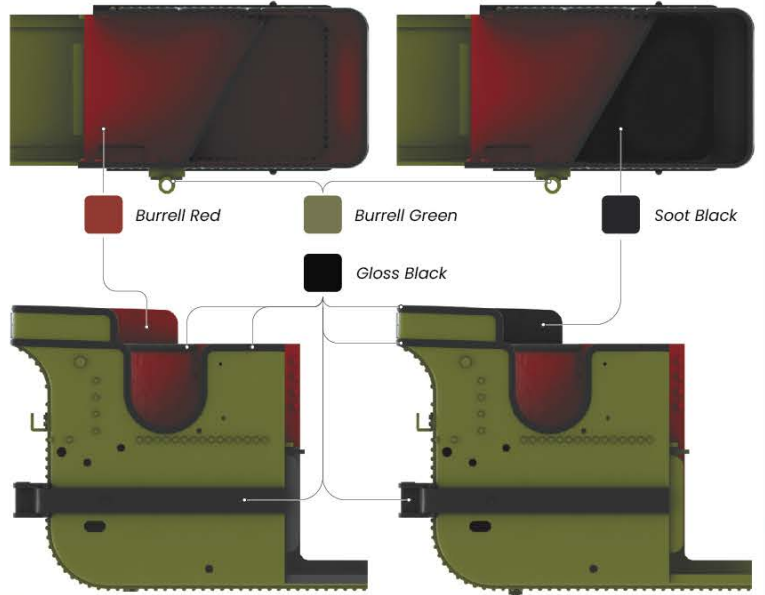


## 8 Number Plate

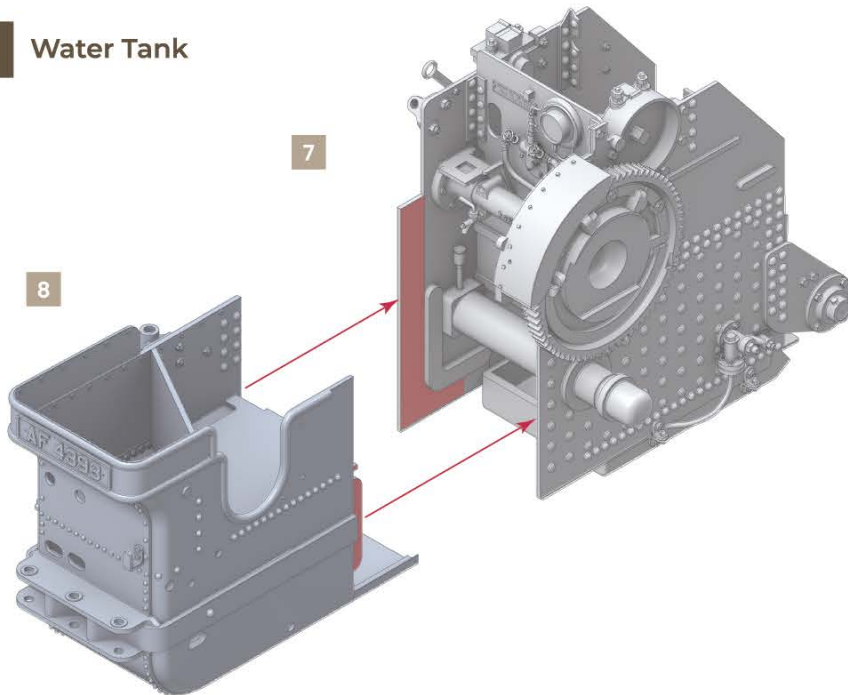


COLOUR SCHEME A

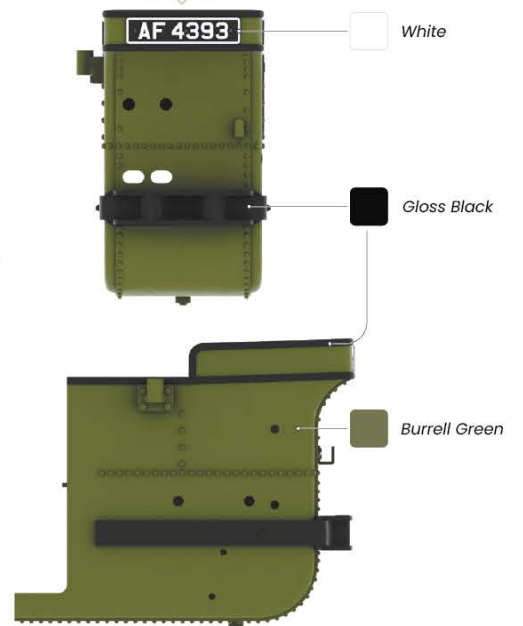
COLOUR SCHEME B



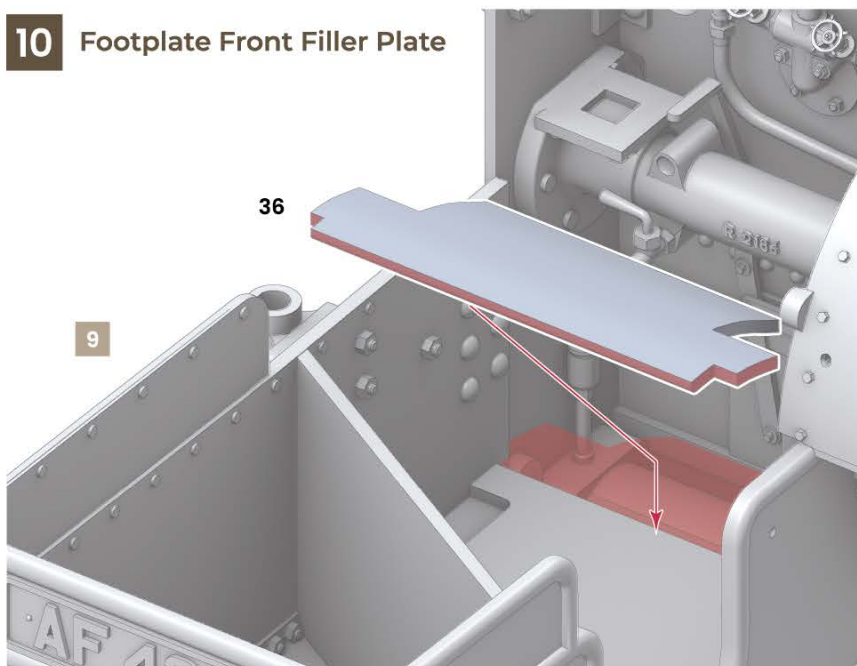
## 9 Water Tank



COLOUR SCHEMES A & B

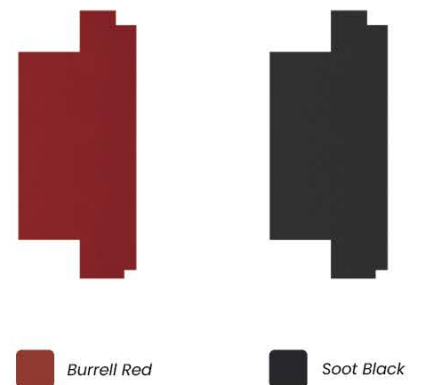


## 10 Footplate Front Filler Plate

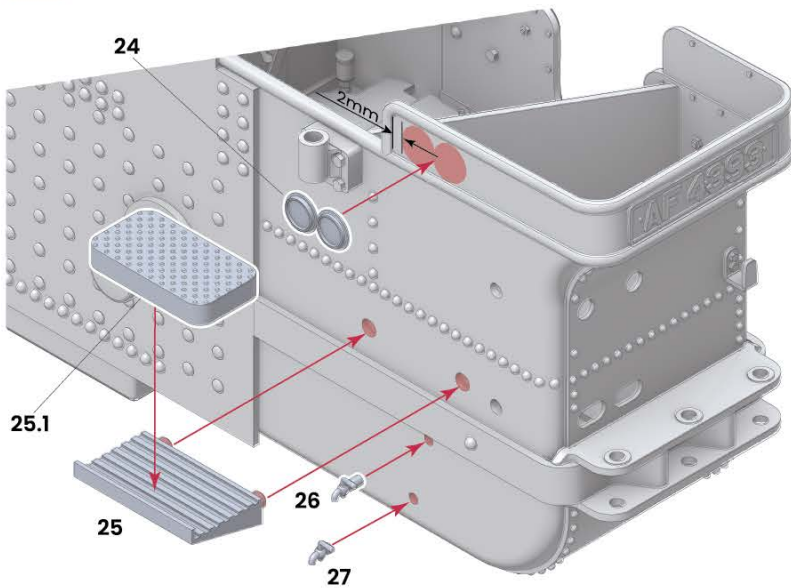


COLOUR SCHEME A

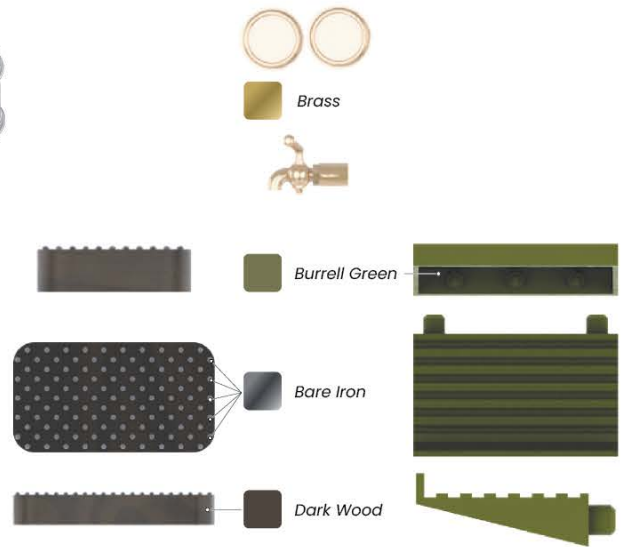
COLOUR SCHEME B



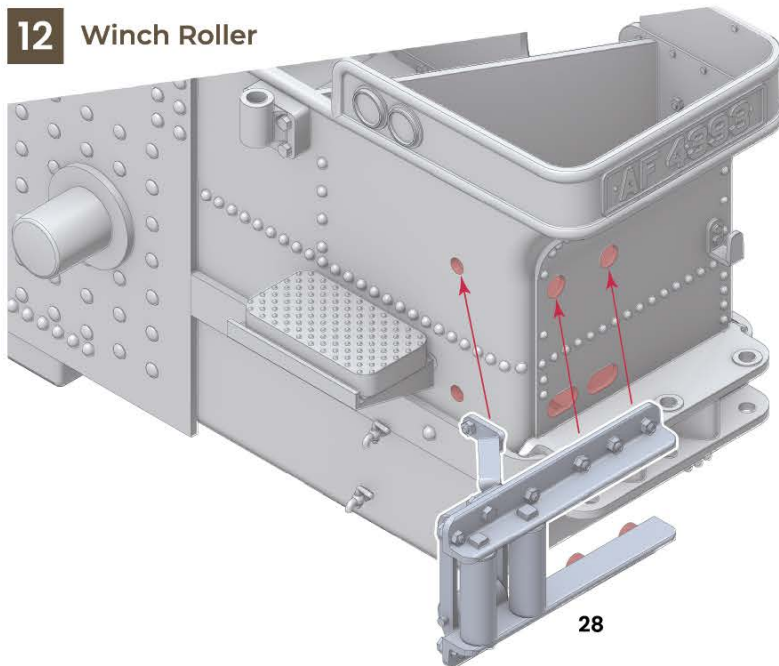
## 11 Tax Disk Holders, Step, Water Tank Taps



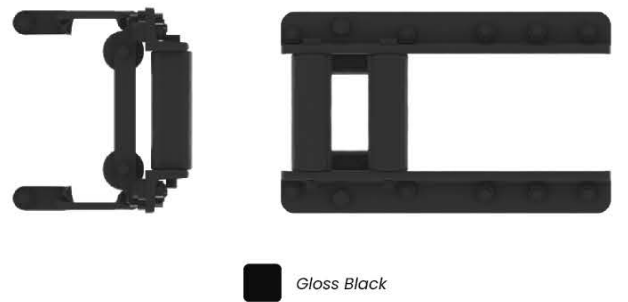
### COLOUR SCHEMES A & B



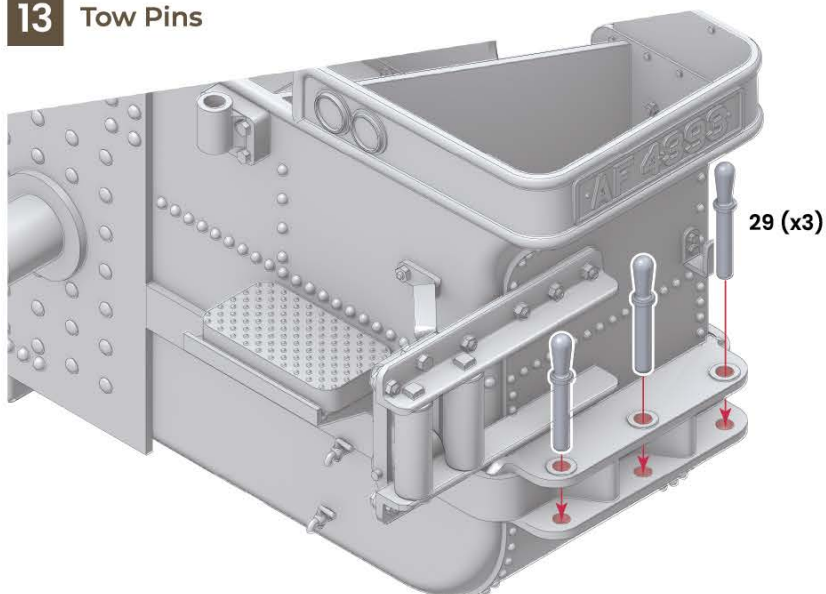
## 12 Winch Roller



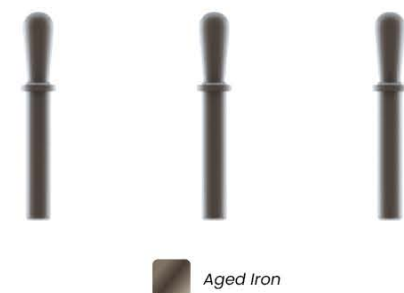
### COLOUR SCHEMES A & B



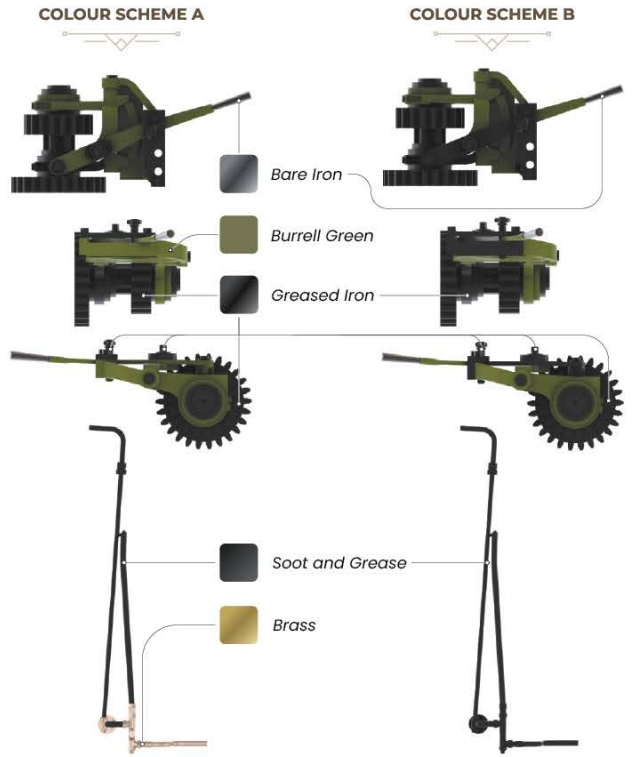
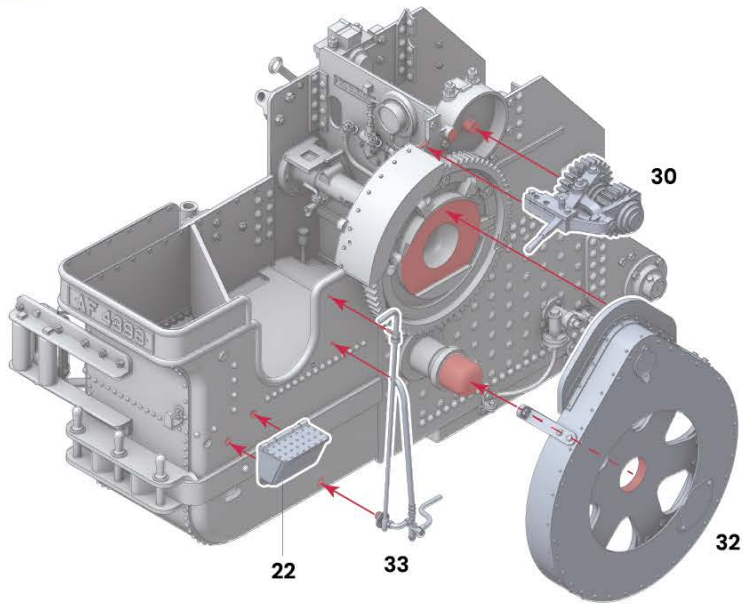
## 13 Tow Pins



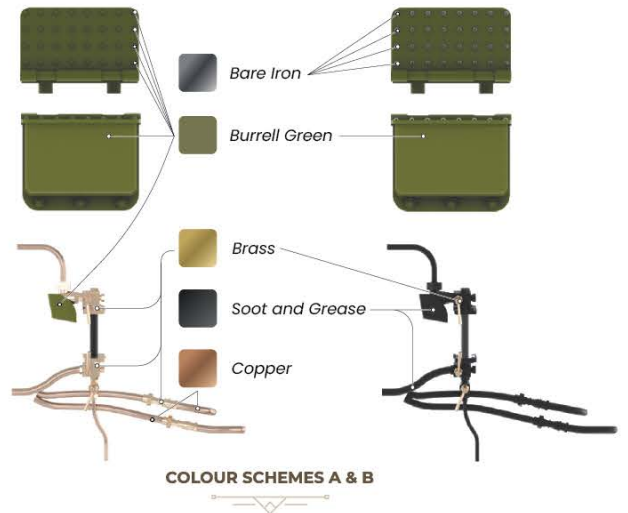
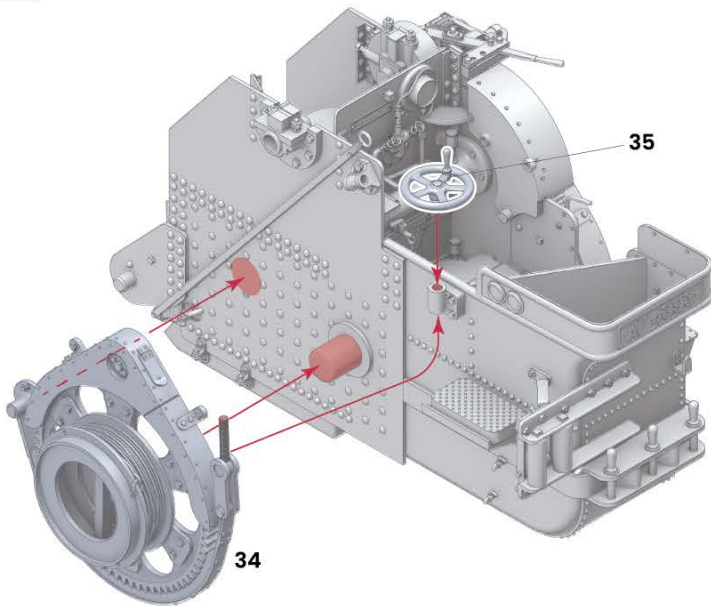
### COLOUR SCHEMES A & B



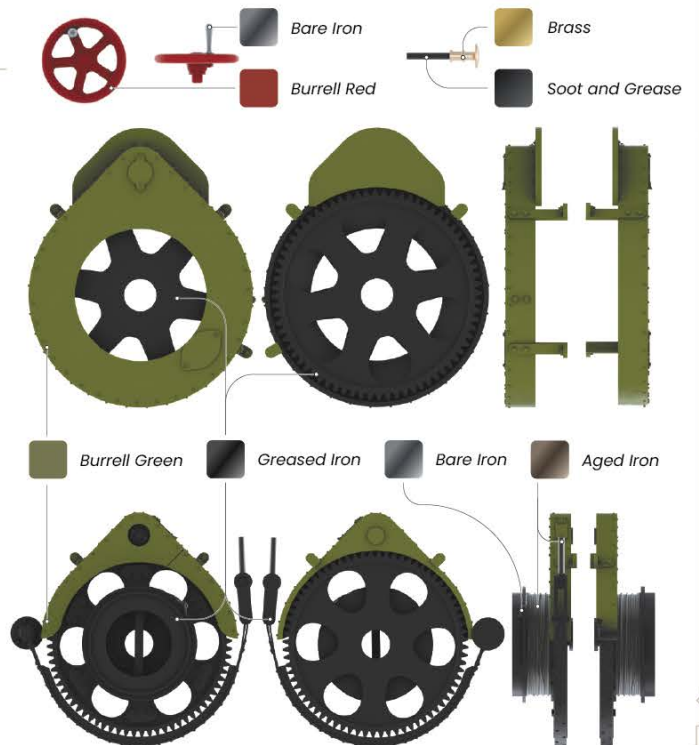
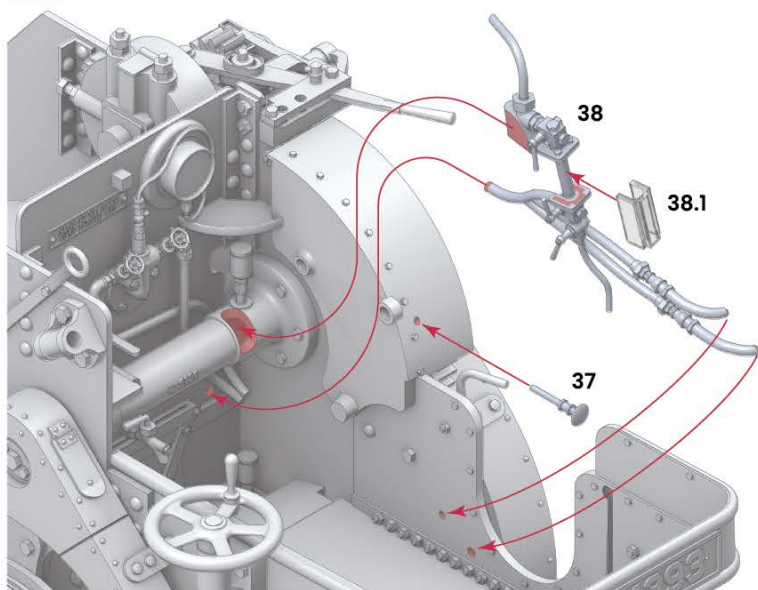
# 14 Gear Selector, Gears, Water Valve & Injector, Step



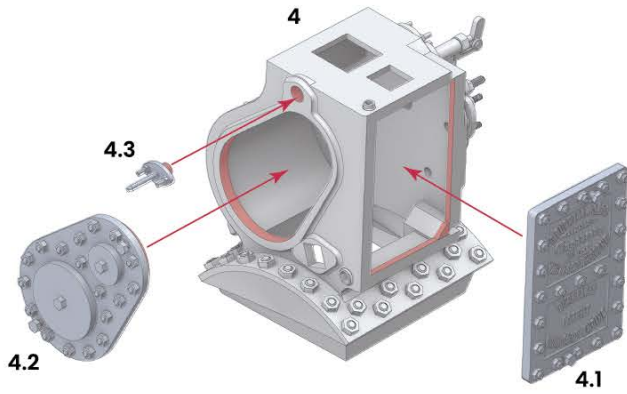
# 15 Drive Gear with Cable and Brake Wheel



# 16 Water Level Indicator and Cylinder Valve Handle

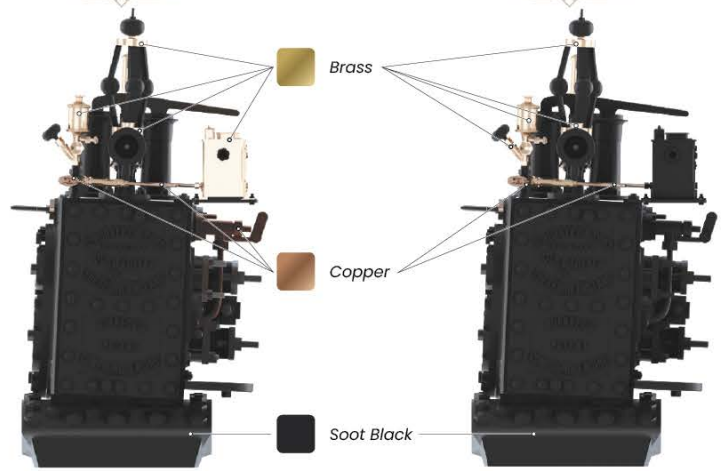


## 17 Steam Chest, Valve and Piston Covers

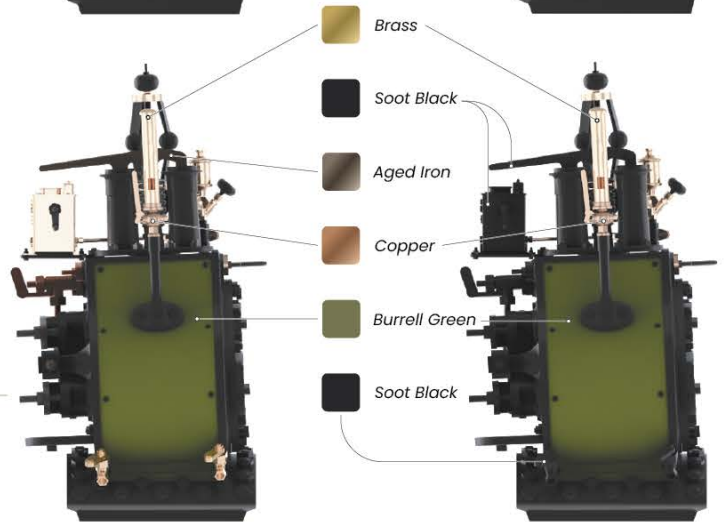
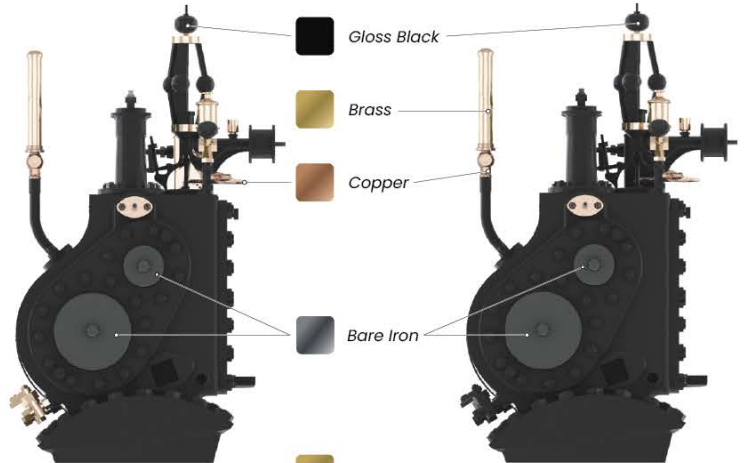
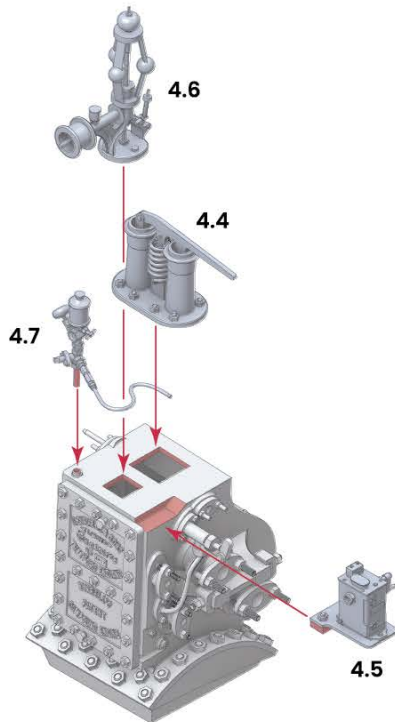


COLOUR SCHEME A

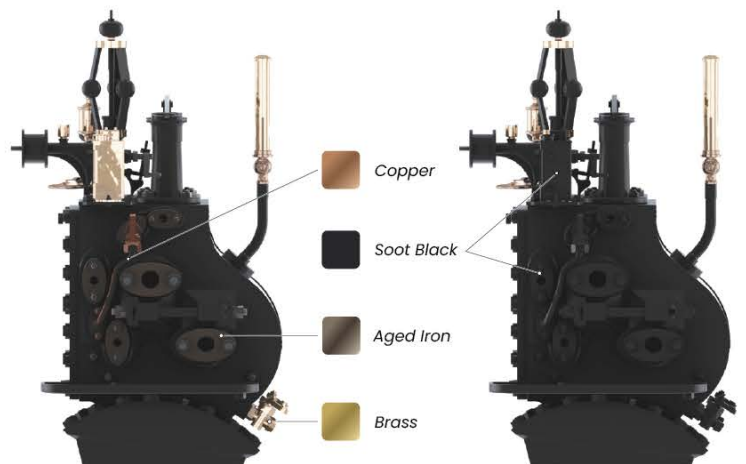
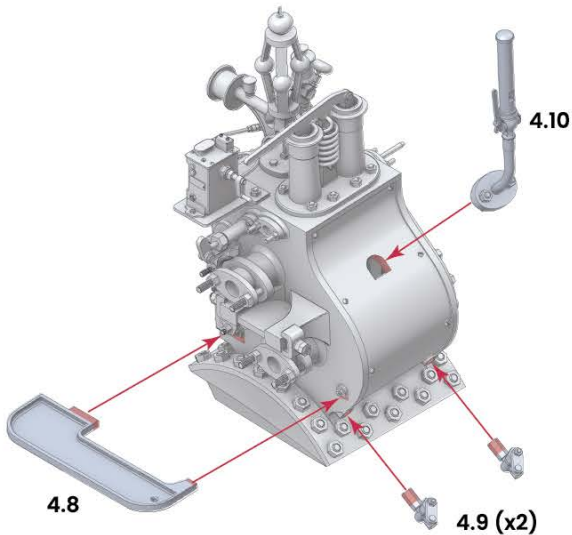
COLOUR SCHEME B



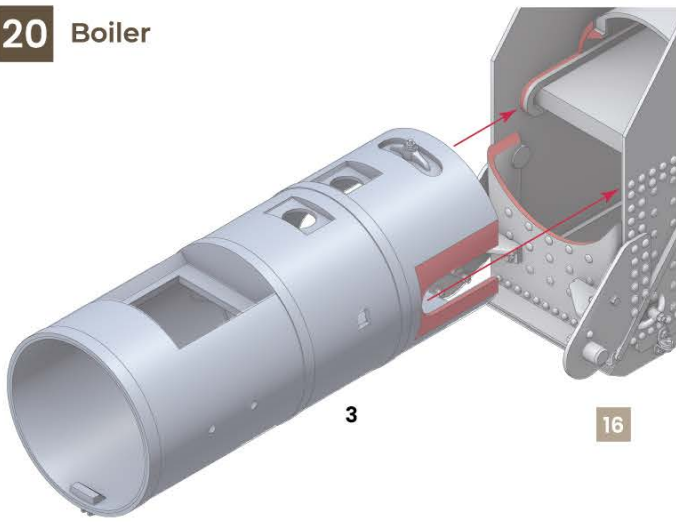
## 18 Governor, Safety Valve, Greaser, and Grease Box



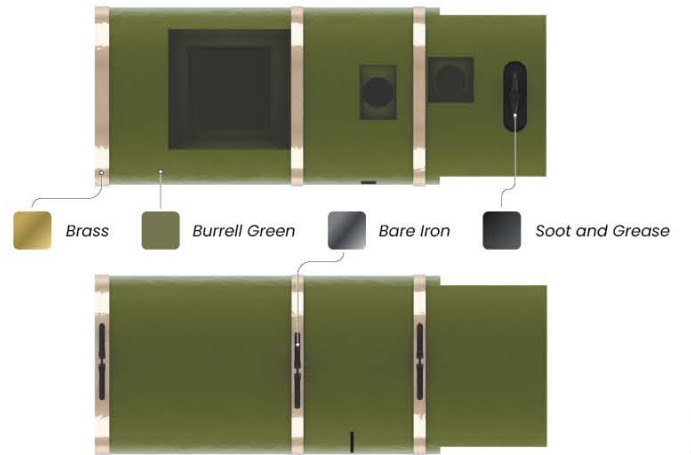
## 19 Whistle, Drain Cocks, Shelf



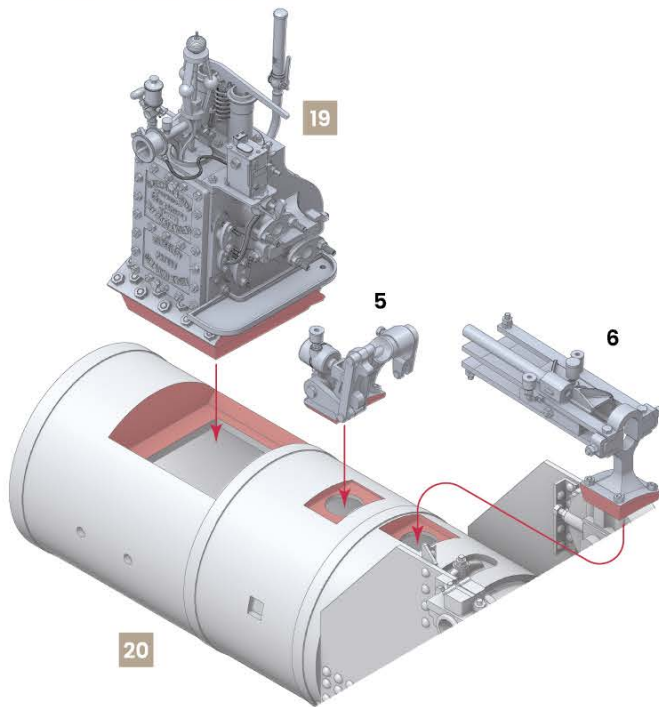
## 20 Boiler



COLOUR SCHEMES A & B

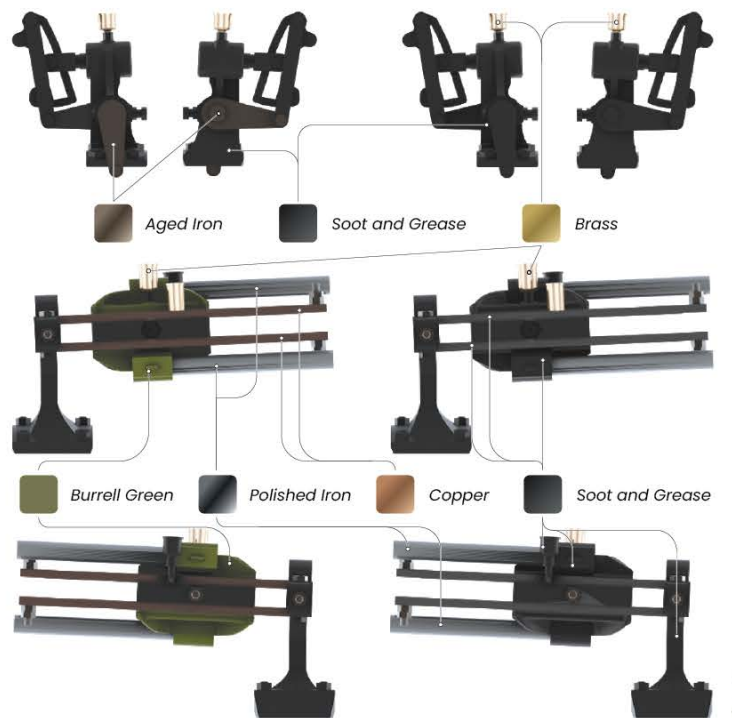


## 21 Steam Chest, Reversing Link and Idler Link, Rear Slide Block

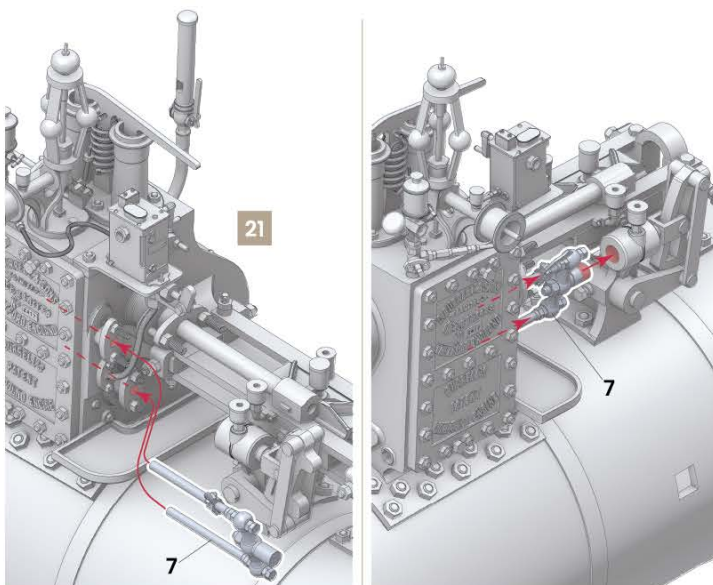


COLOUR SCHEME A

COLOUR SCHEME B

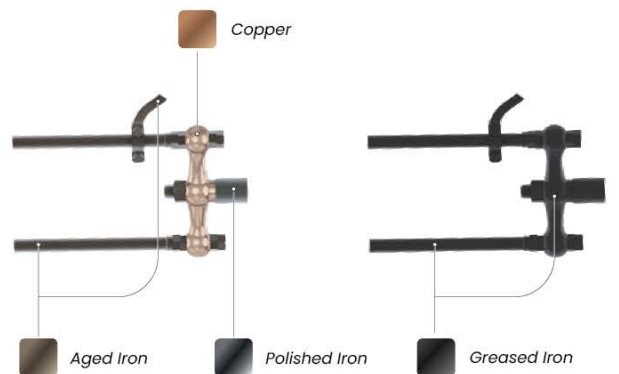


## 22 Steam Valve Linkage

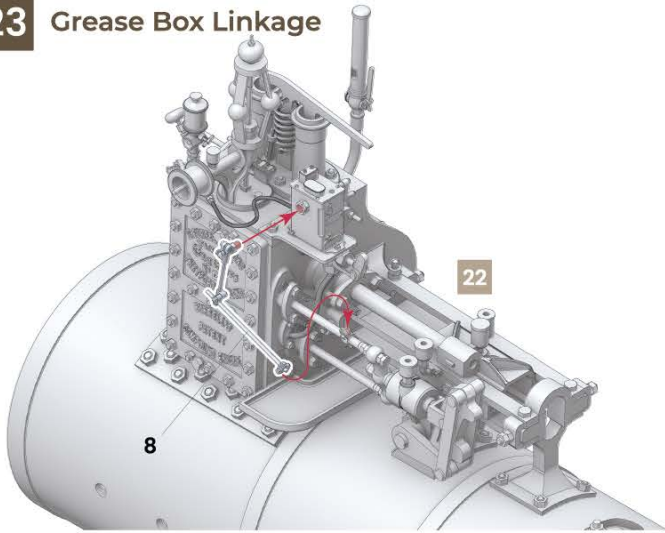


COLOUR SCHEME A

COLOUR SCHEME B



## 23 Grease Box Linkage



COLOUR SCHEME A



 Aged Iron

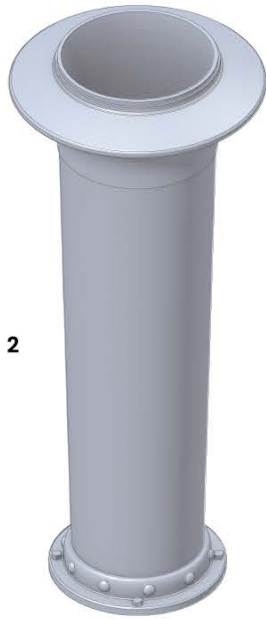
COLOUR SCHEME B



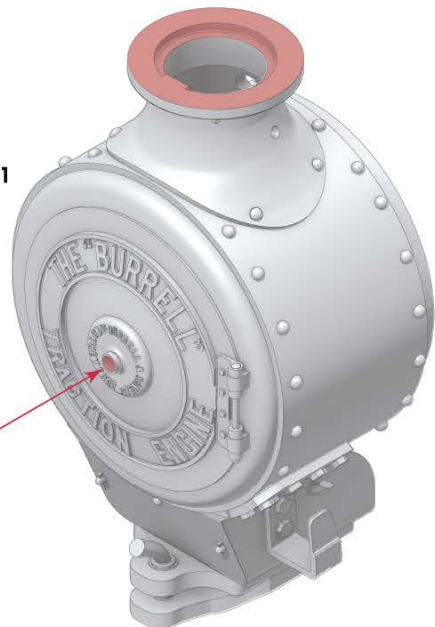
 Greased Iron

## 24 Smokebox, Smokebox Door Lock, Chimney

COLOUR SCHEMES A & B

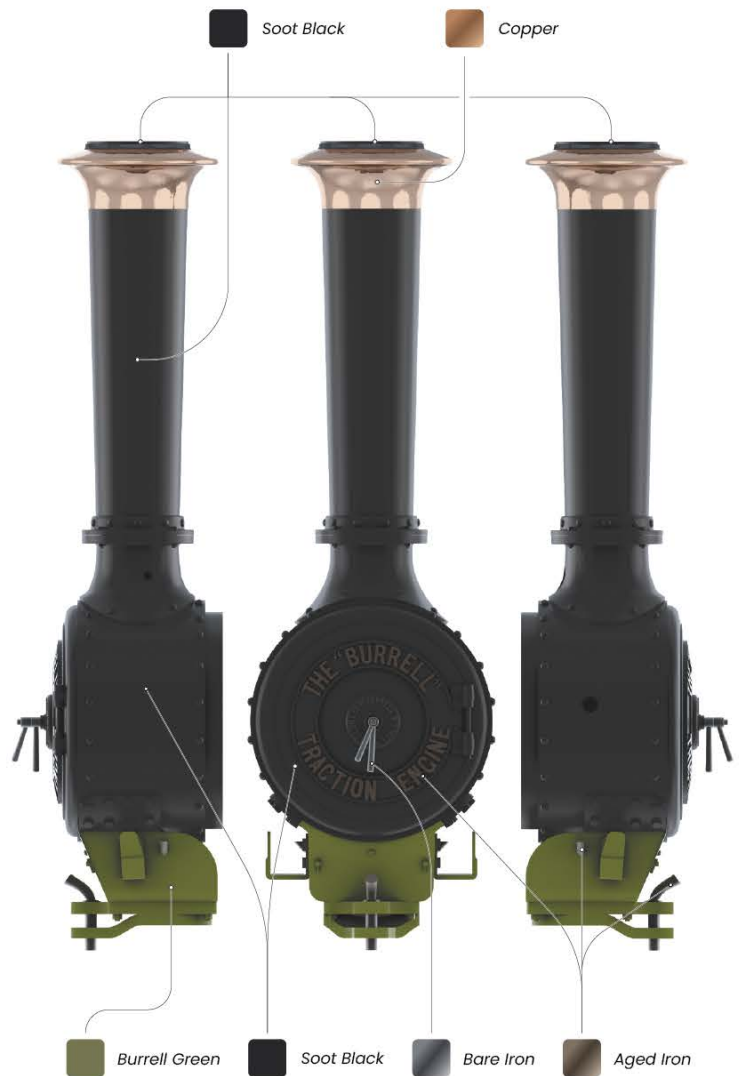


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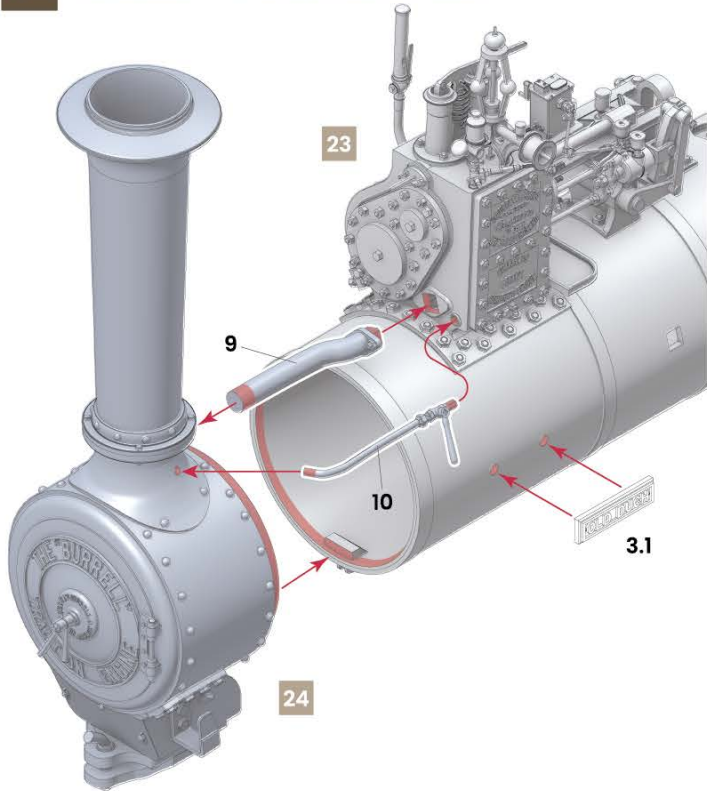


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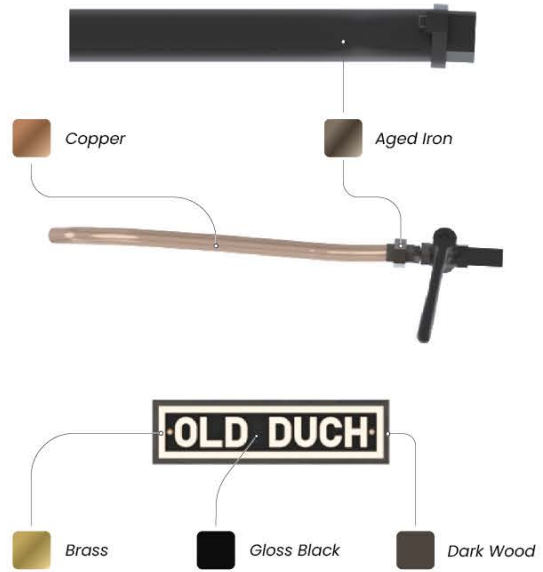
1.1



## 25 Exhaust Pipe and Name Plate



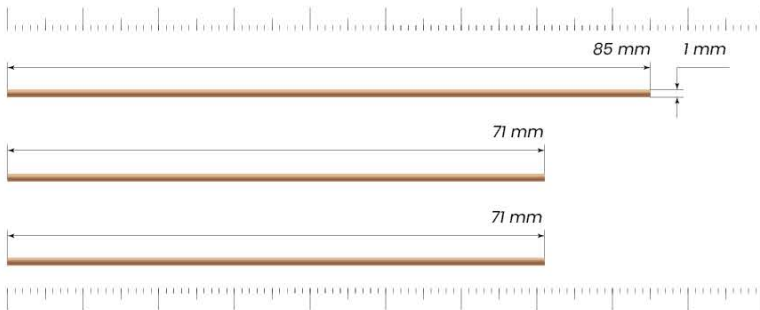
COLOUR SCHEMES A & B



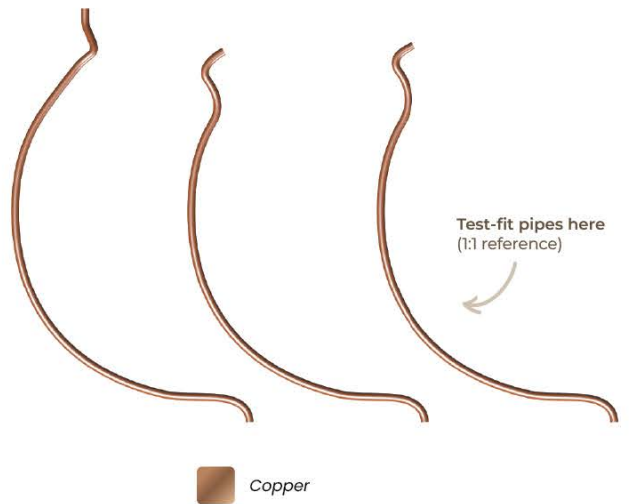
## 26 Drain Pipes

→ **Bending Drain Pipes**  
Use the supplied copper wire to form the drain pipes.

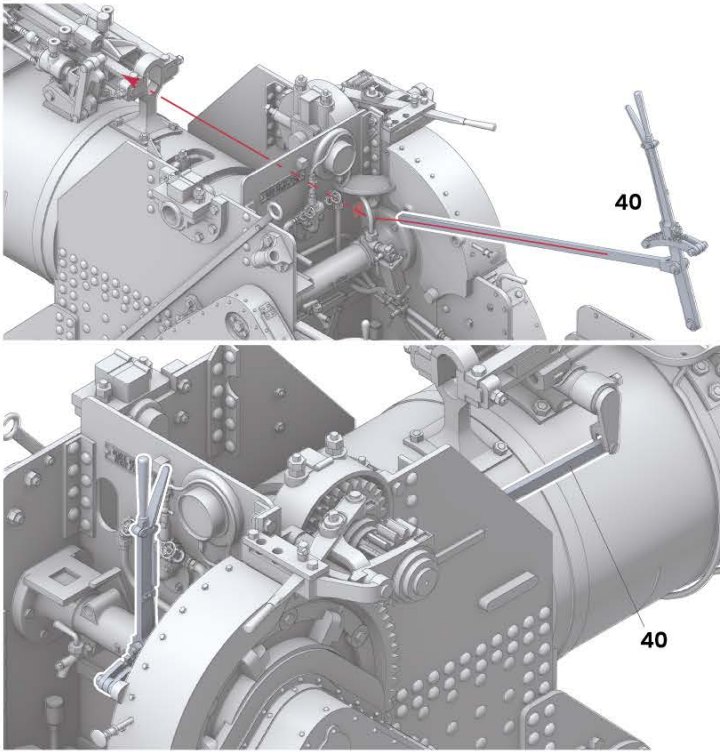
Each pipe should match the length specified below. However, it is recommended to start with a slightly longer piece of wire to allow easier bending at the ends. Trim any excess after test fitting to the model.



COLOUR SCHEMES A & B

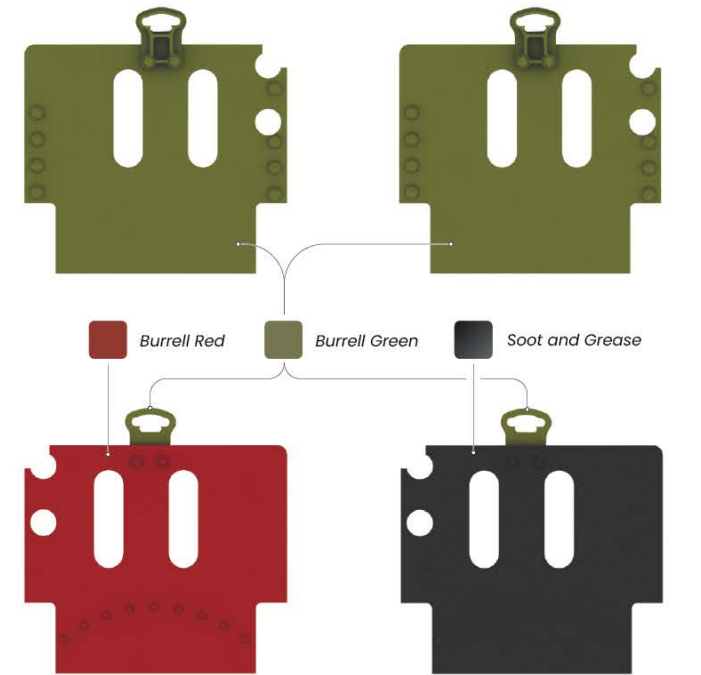
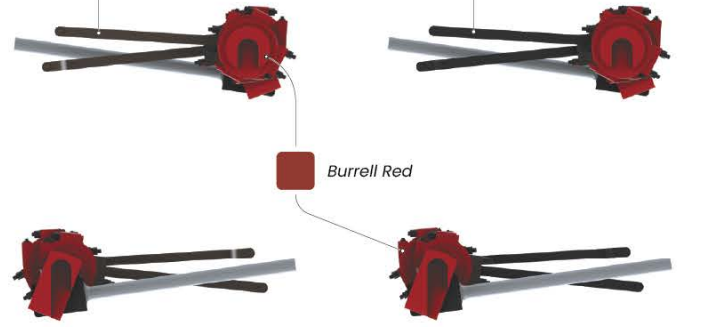
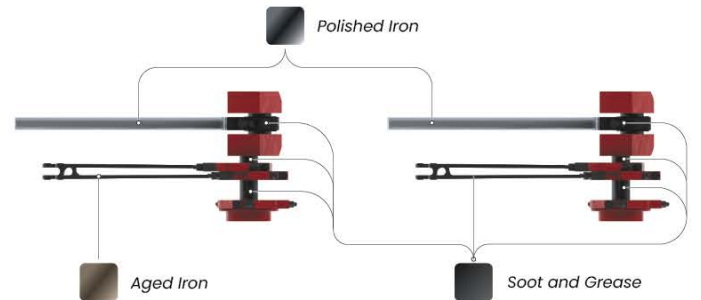
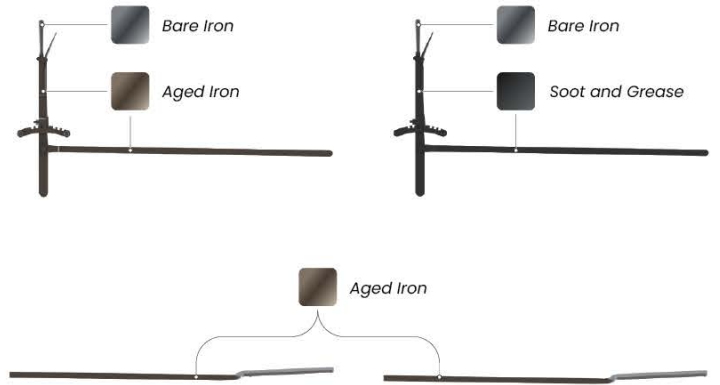


## 27 Reversing Lever

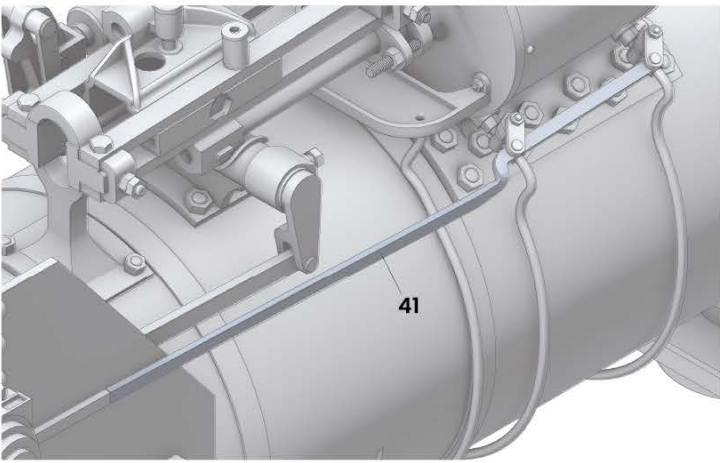


COLOUR SCHEME A

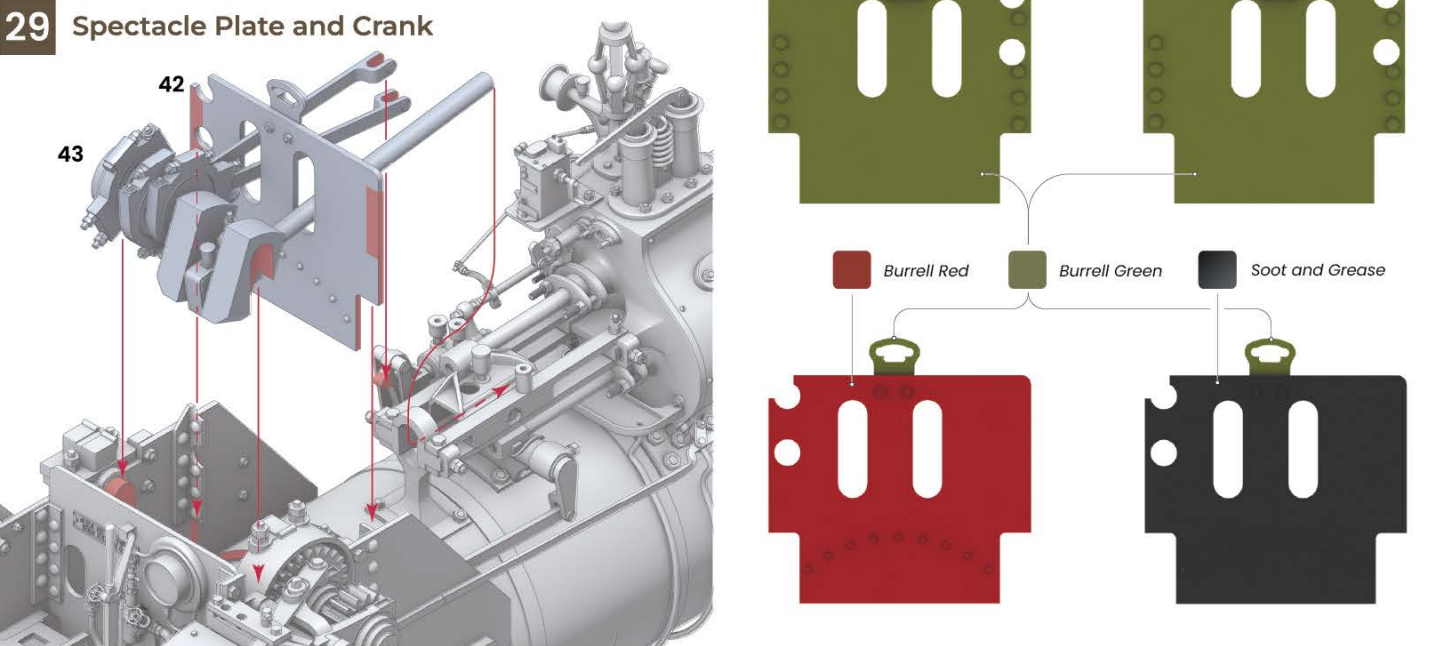
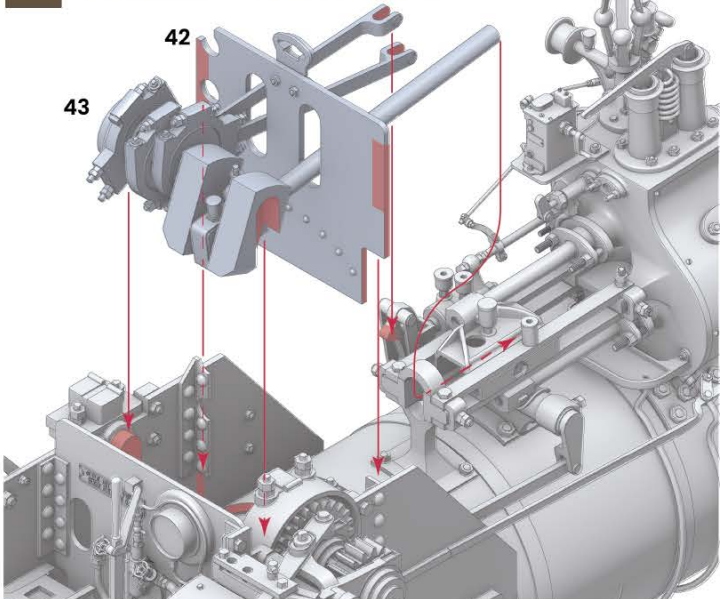
COLOUR SCHEME B



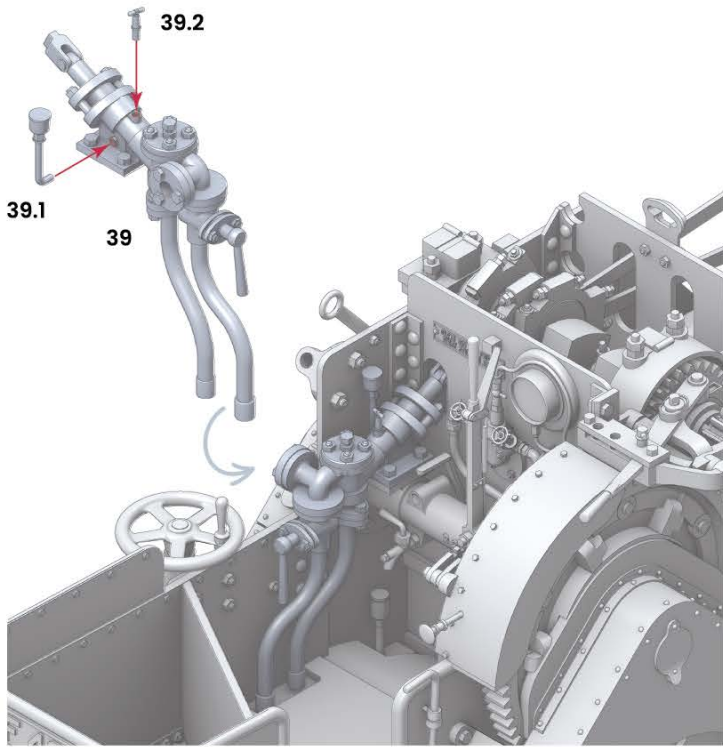
## 28 Drain Cock Linkage



## 29 Spectacle Plate and Crank

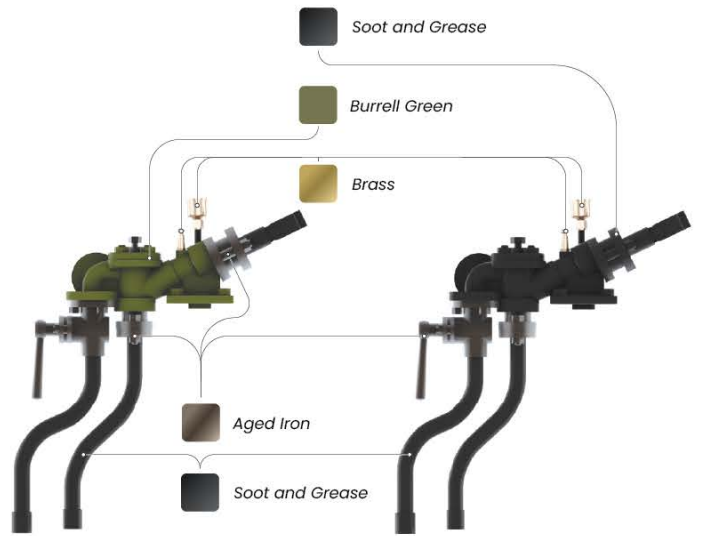


### 30 Water Pump

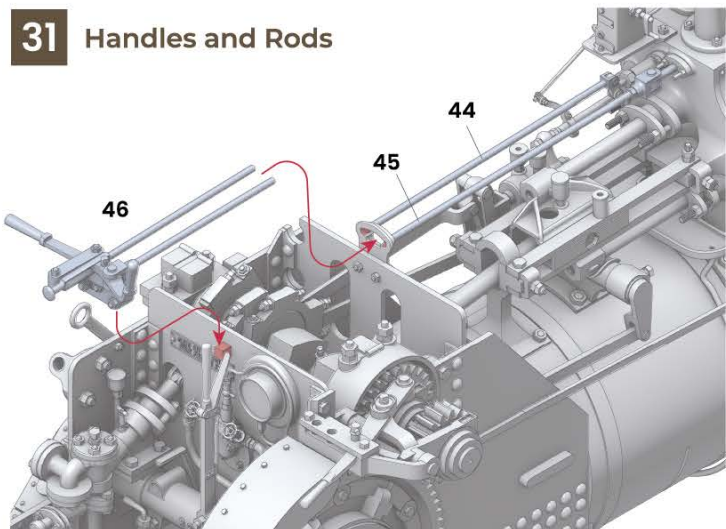


COLOUR SCHEME A

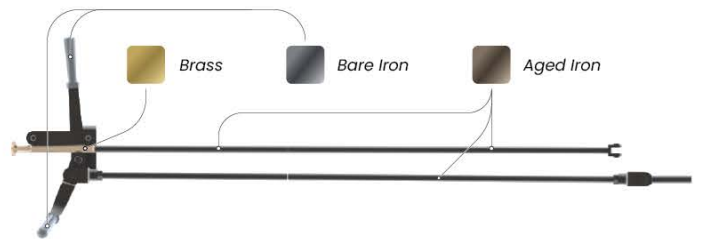
COLOUR SCHEME B



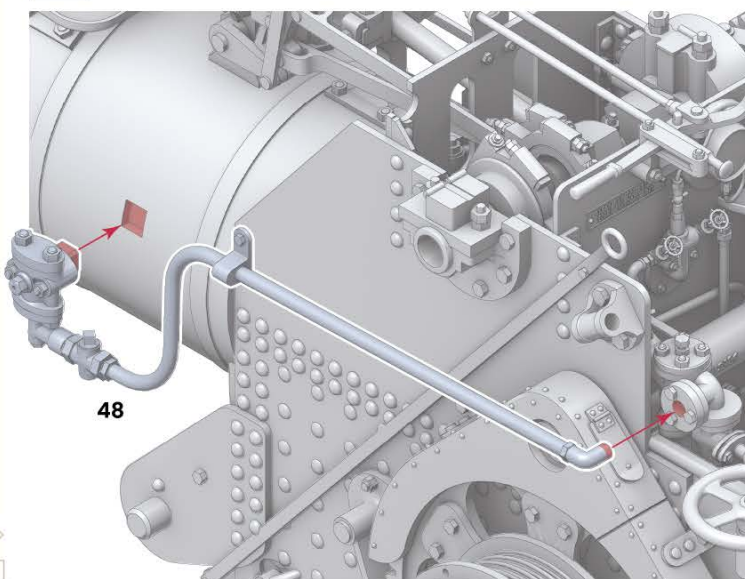
### 31 Handles and Rods



COLOUR SCHEMES A & B

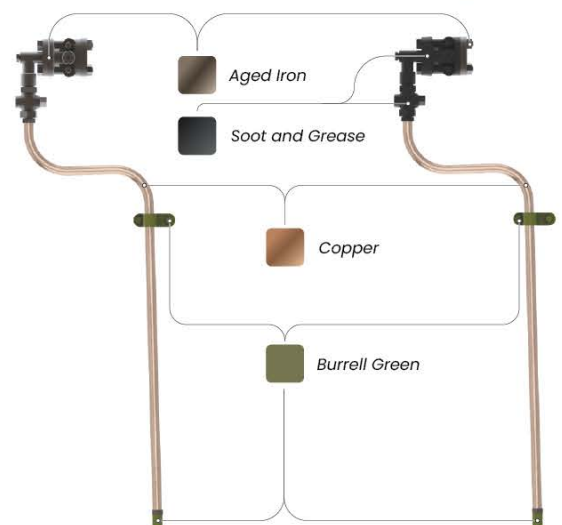


### 32 Boiler Water Pump Input Junction

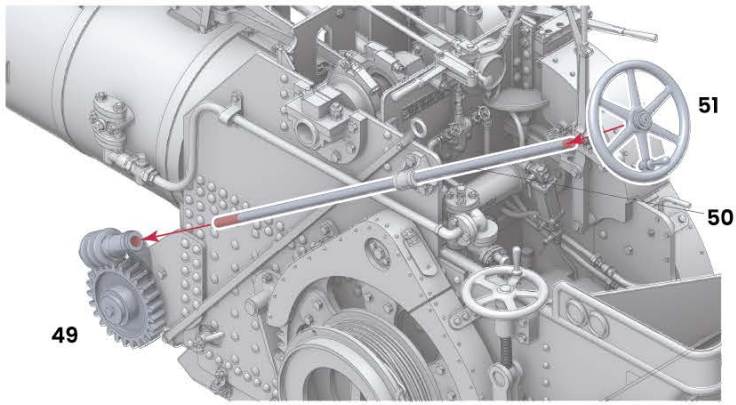


COLOUR SCHEME A

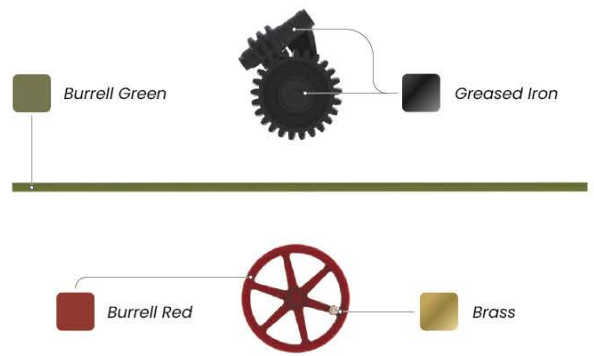
COLOUR SCHEME B



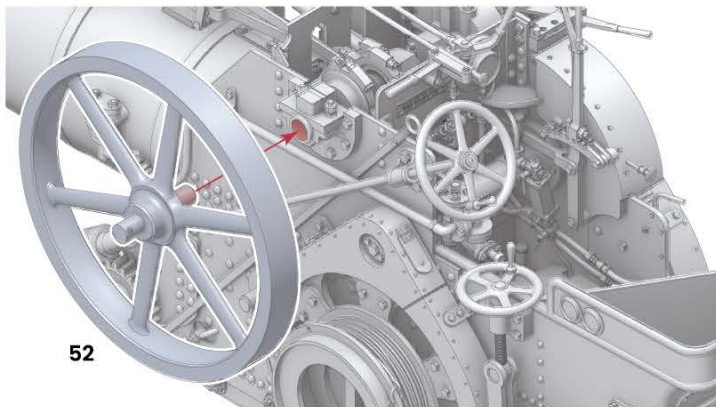
### 33 Steering



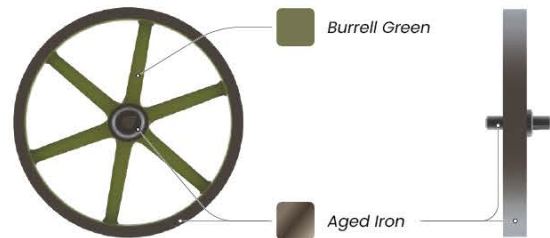
#### COLOUR SCHEMES A & B



### 34 Flywheel



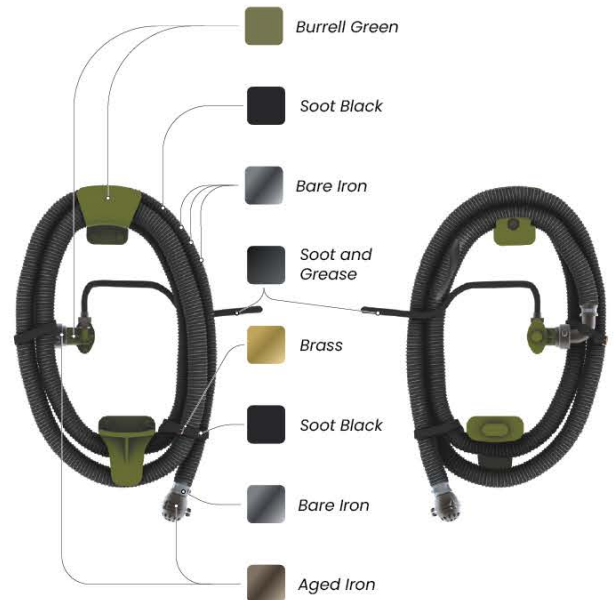
#### COLOUR SCHEMES A & B



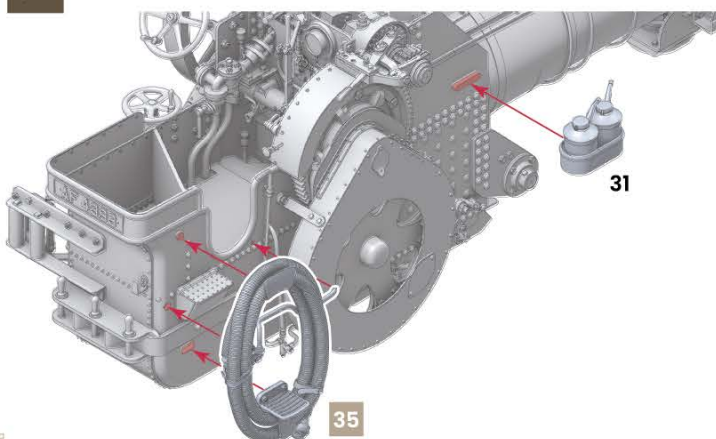
### 35 Water Hose



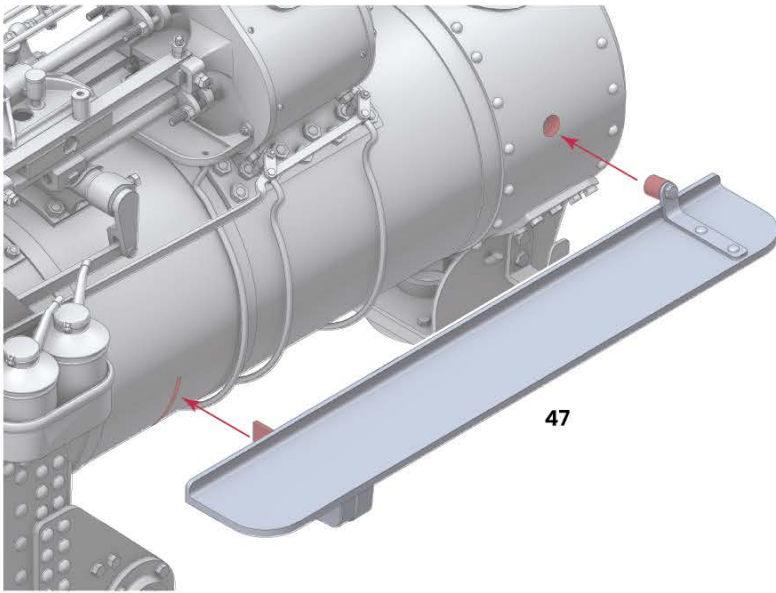
#### COLOUR SCHEMES A & B



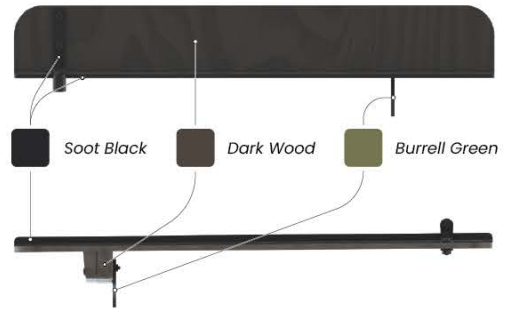
### 36 Water Hose and Oil Can Shelf



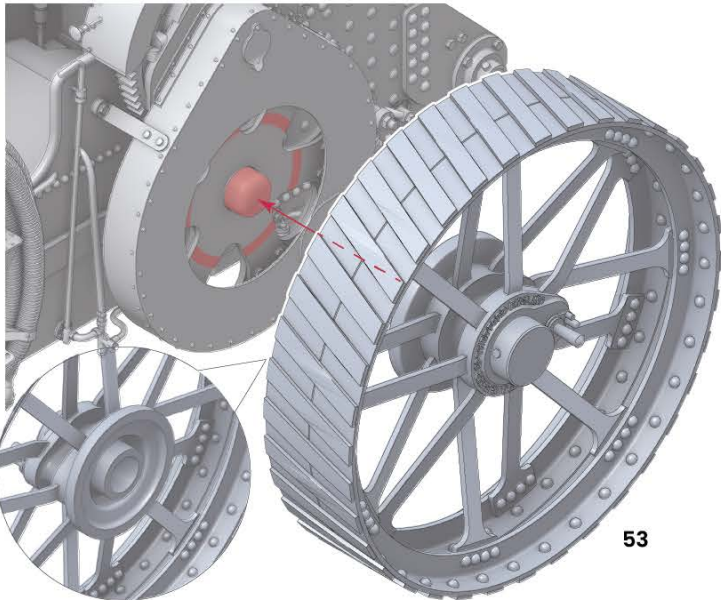
### 37 Running Board



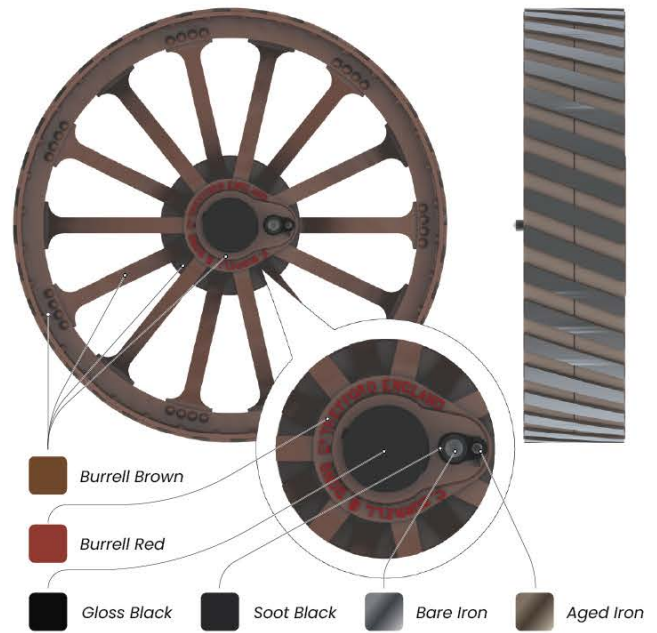
#### COLOUR SCHEMES A & B



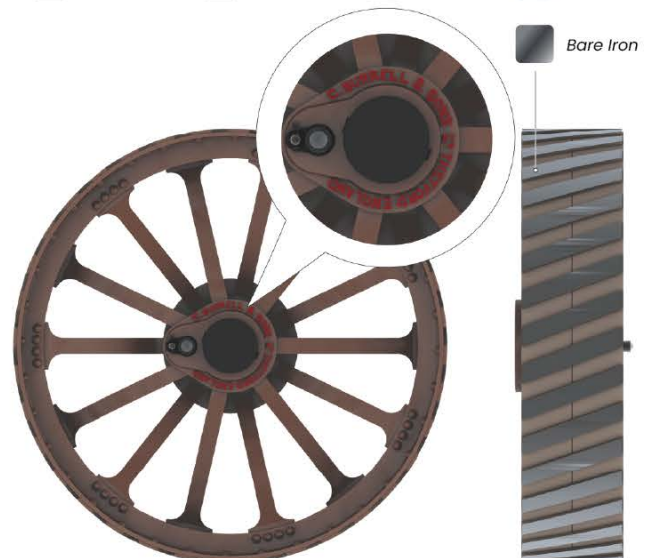
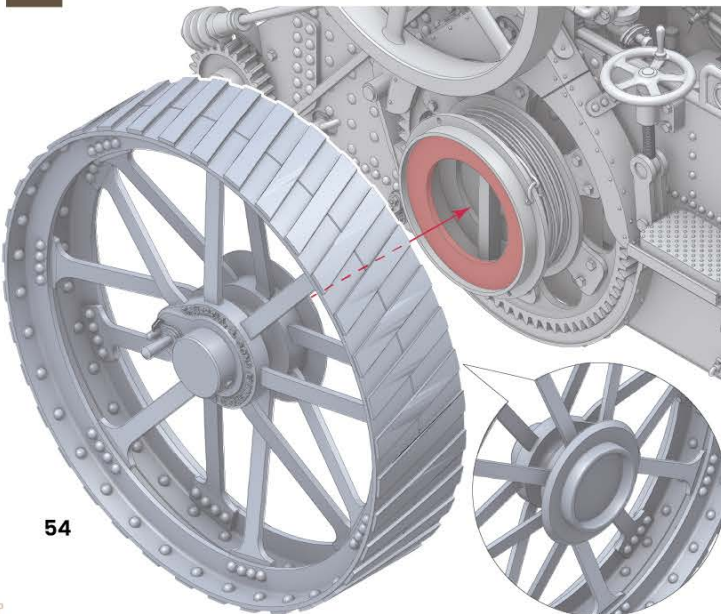
### 38 Right Driving Wheel



#### COLOUR SCHEMES A & B



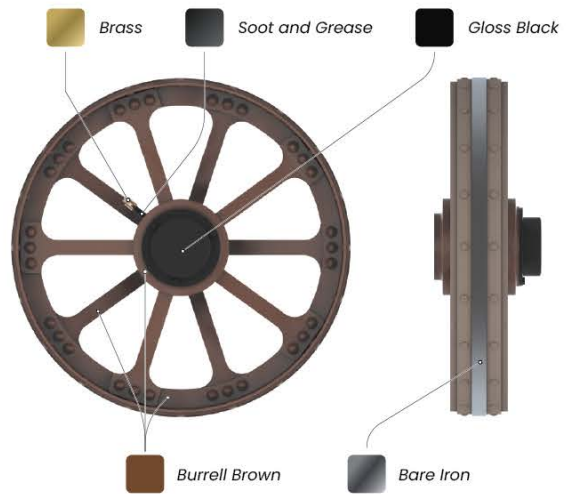
### 39 Left Driving Wheel



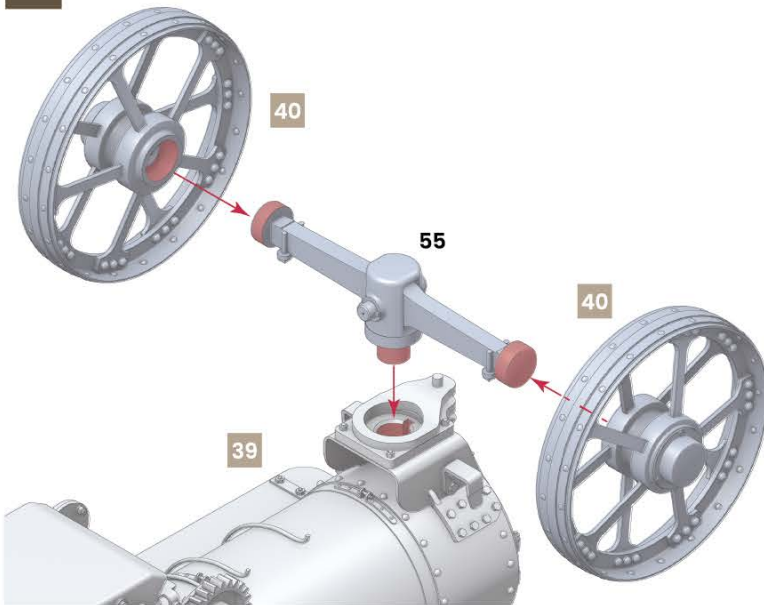
## 40 Front Wheels



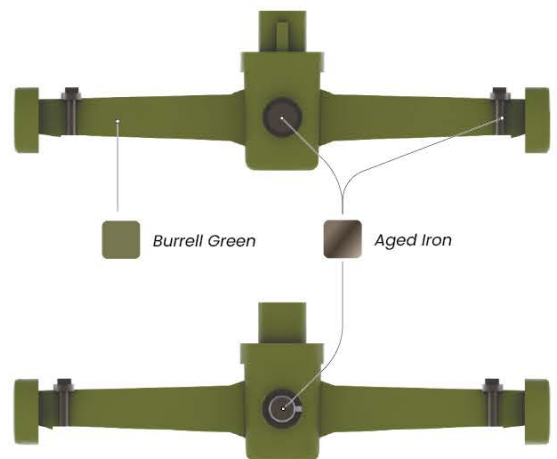
COLOUR SCHEMES A & B



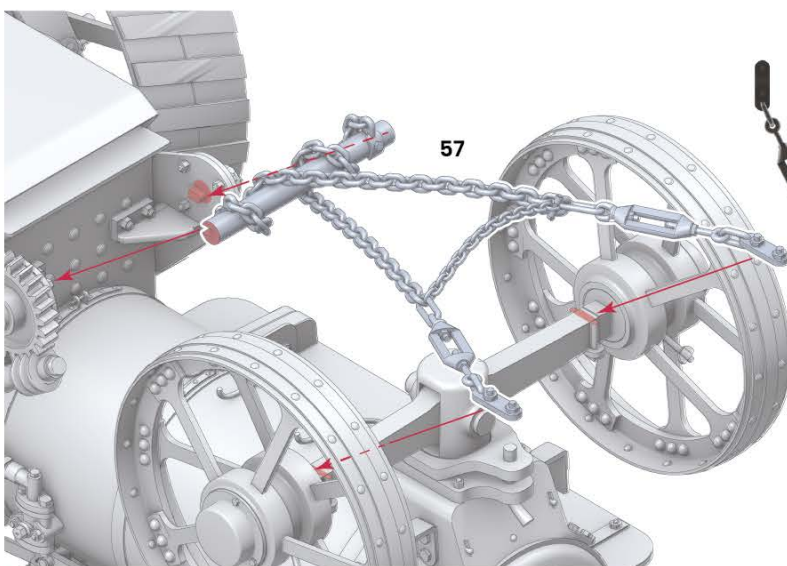
## 41 Front Axle and Front Wheels



COLOUR SCHEMES A & B

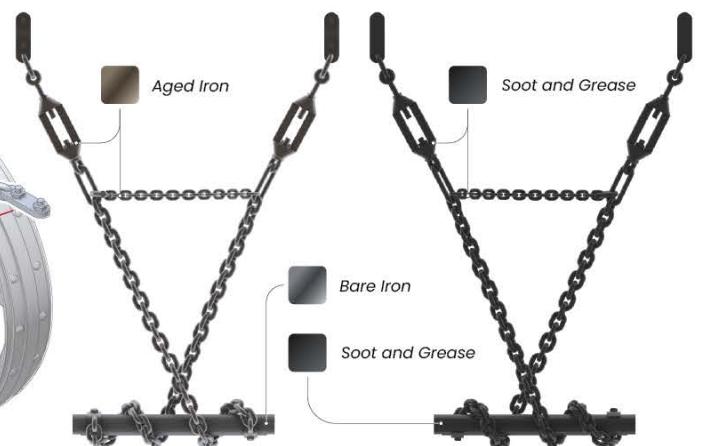


## 42 Steering Chains

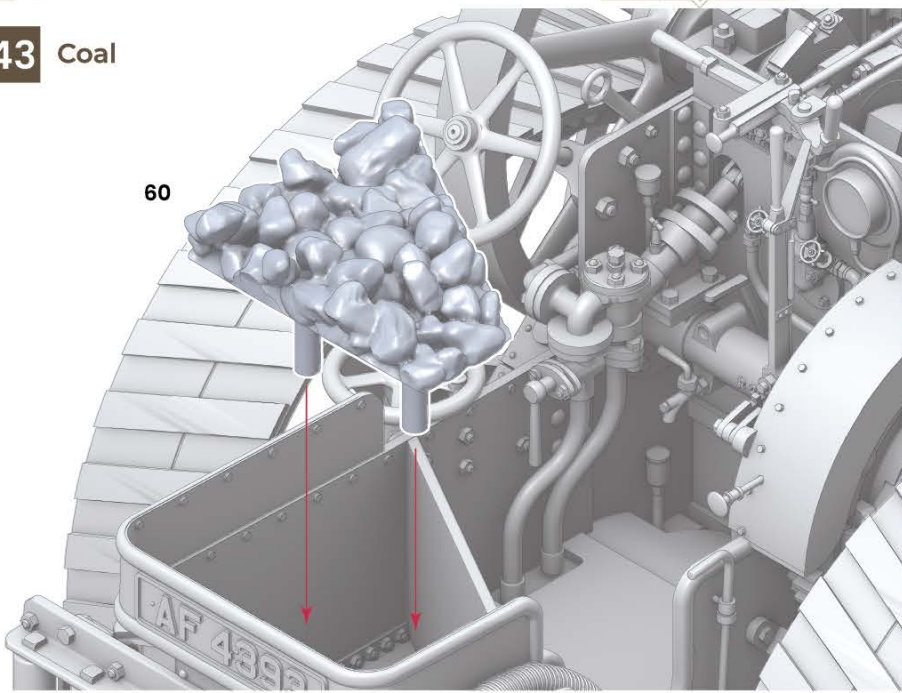


COLOUR SCHEME A

COLOUR SCHEME B



### 43 Coal

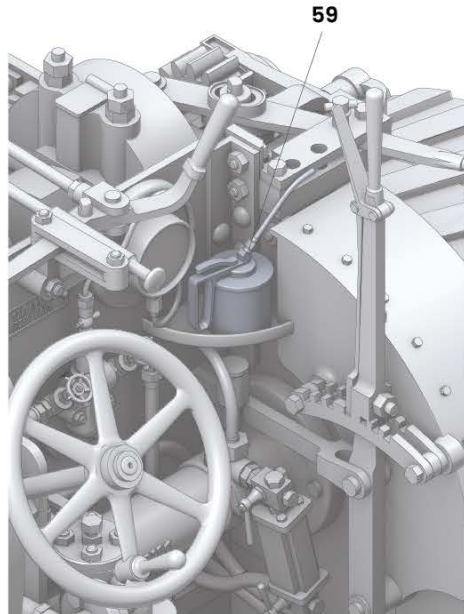
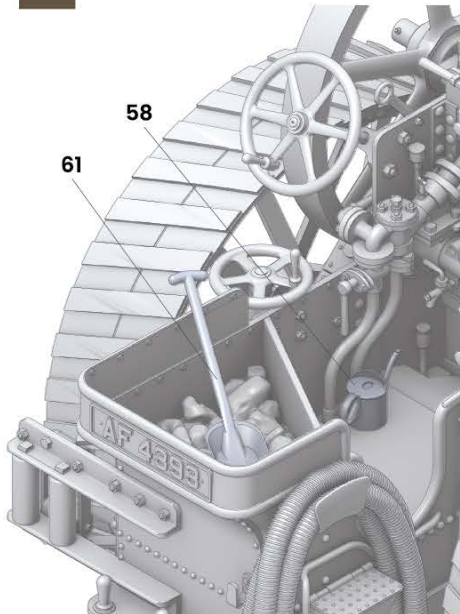


COLOUR SCHEMES A & B



Soot and Grease

### 44 Shovel and Oil Cans



COLOUR SCHEMES A & B



Soot and Grease



Dark Wood

Bare Iron

### 45 Figure

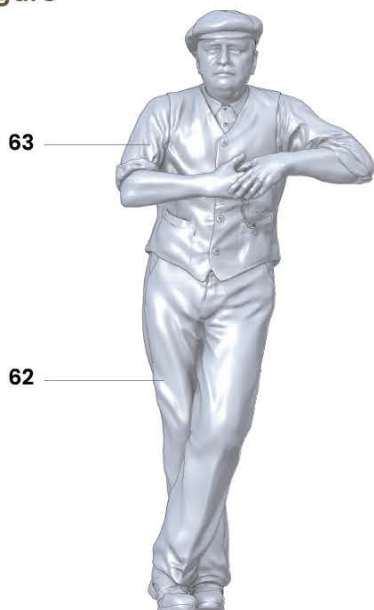


FIGURE PAINT SCHEME

Dark Grey Hat

Natural Grey Hair

Skin Tone

Linen Shirt

Brown Jacket

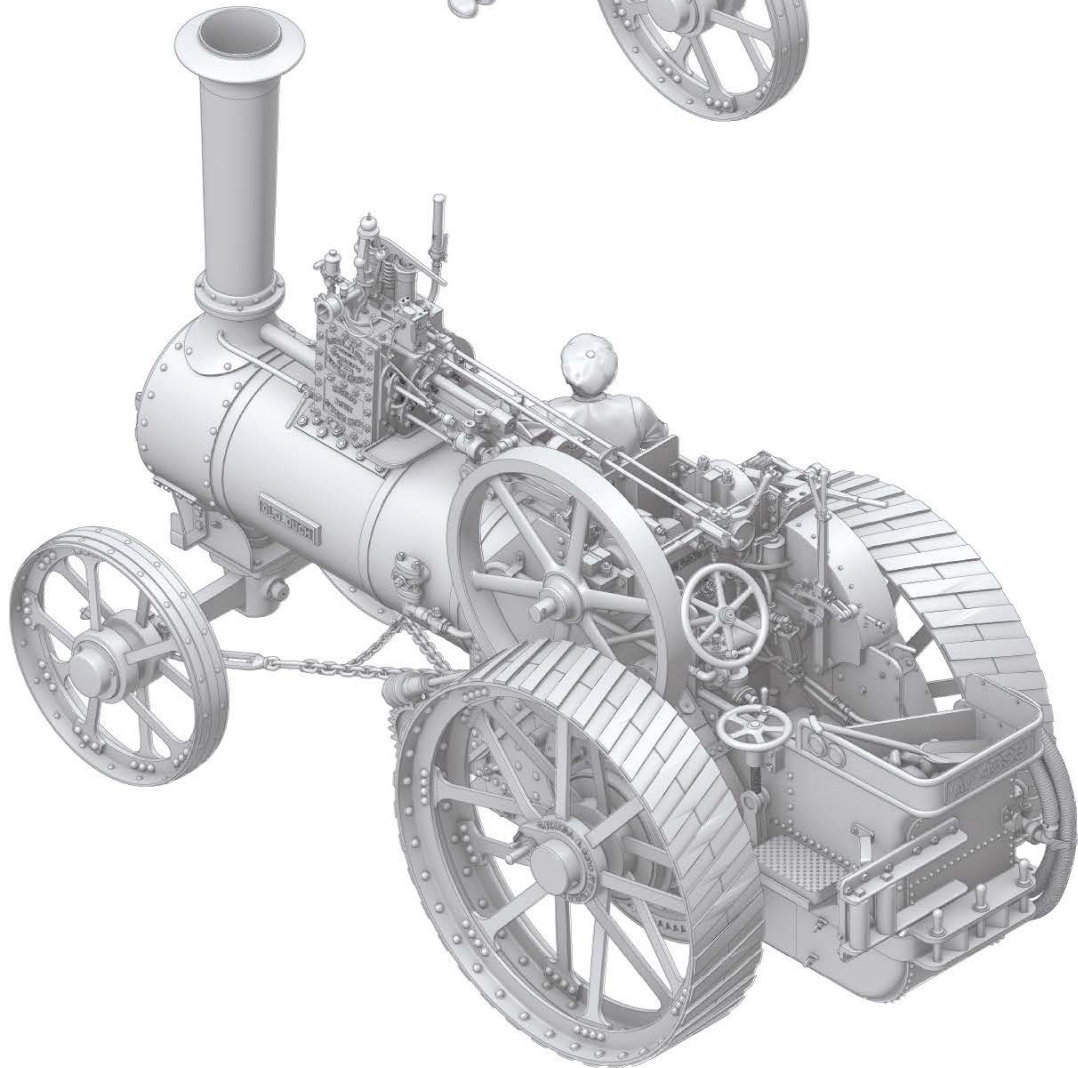
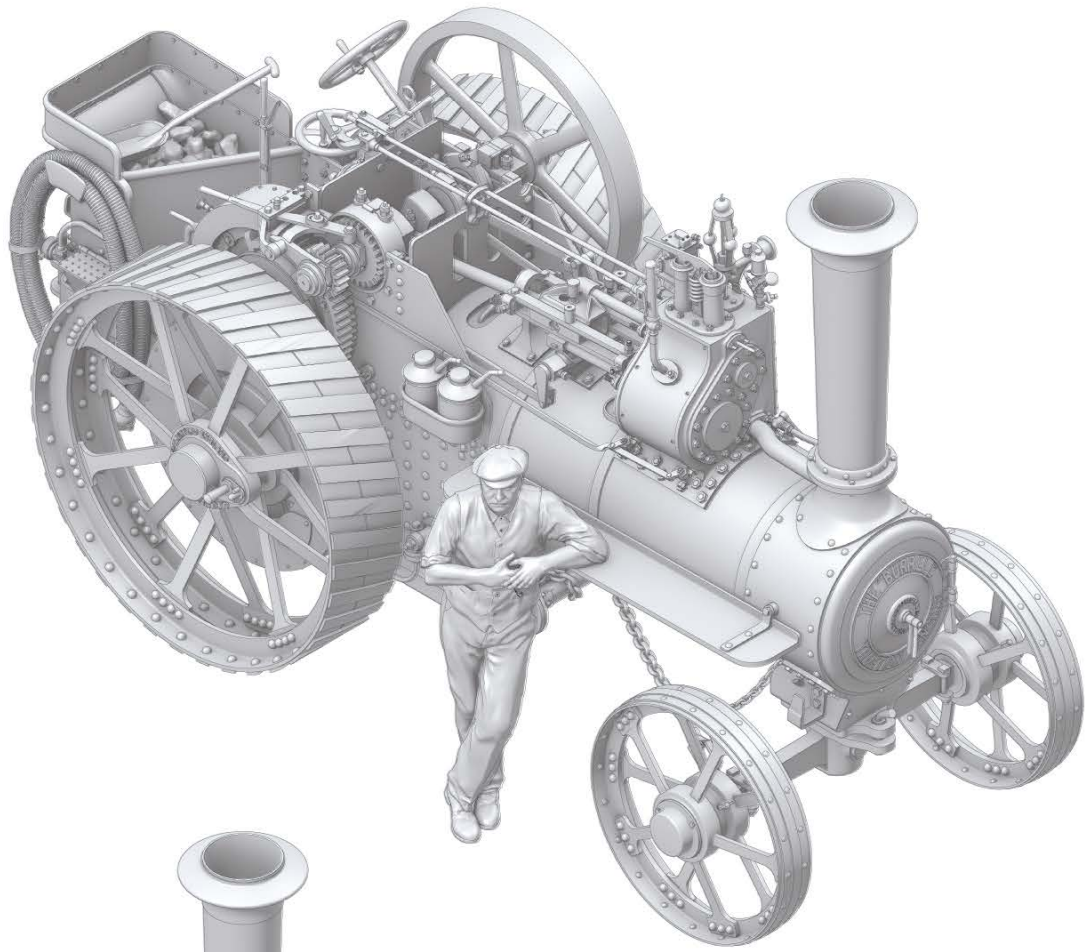
Polished Iron

Dark Grey Trousers

Brown Shoes















Shoe Soles

# COMPLETED MODEL











# REFERENCE COLOURS

## BURRELL PAINT FINISHES

Colour	AK 3GEN Acrylics	Mr. Hobby Aqueous
 Burrell Green	AK11147 + AK11130 Mix Ratio 3:1	H80 + H58
 Burrell Red	AK11088	H23
 Burrell Brown	AK11107 + AK11113 Mix Ratio 1:1	H453 + H406
 Soot & Grease	AK11028 + AK11238	H77 + H2
 Gloss Black	AK11029	H2
 Brass	AK11194	H9 + H10
 Copper	AK11197	H10
 Aged Iron	AK11198	H76
 Bare Iron	AK11210	H8
 Greased Iron	AK11211 + AK11212	H8 + H18
 Polished Iron	AK11207	H8
 Soot Black	AK11028 + AK11237	H77
 Dark Wood	AK11109	H406
 White	AK11001	H1

## FIGURE PAINT FINISHES

Colour	AK 3GEN Acrylics	Mr. Hobby Aqueous
 Skin Tone	AK11052	H44
 Natural Grey Hair	AK11013	H316
 Linen Shirt	AK11003	H21
 Brown Jacket	AK11125	H310
 Trousers	AK11165	H53
 Dark Grey Hat	AK11022	H68
 Brown Shoes	AK11110	H47
 Shoe Soles	AK11027	H77

### Painting Philosophy

The colours shown in this guide are indicative only. Different paint combinations, mixing ratios, and finishing techniques may produce varied and often more realistic results than the use of single base colours alone. We encourage you to use the paints and techniques you trust most to achieve the desired appearance.

## PARTS REPLACEMENT

If any parts are missing or damaged, please scan the QR code below to access the replacement parts request form.

Please include the kit name, SKU number, and photographs of the affected parts when submitting your request.



<https://scalex.art/en/contact-us/>

## ABOUT STEAMX

SteamX is a dedicated division of ScaleX focused on the research, development, and production of historic steam engine models for scale modelling enthusiasts and collectors.

**ScaleX**

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Produced in collaboration with David and Amanda Jones.

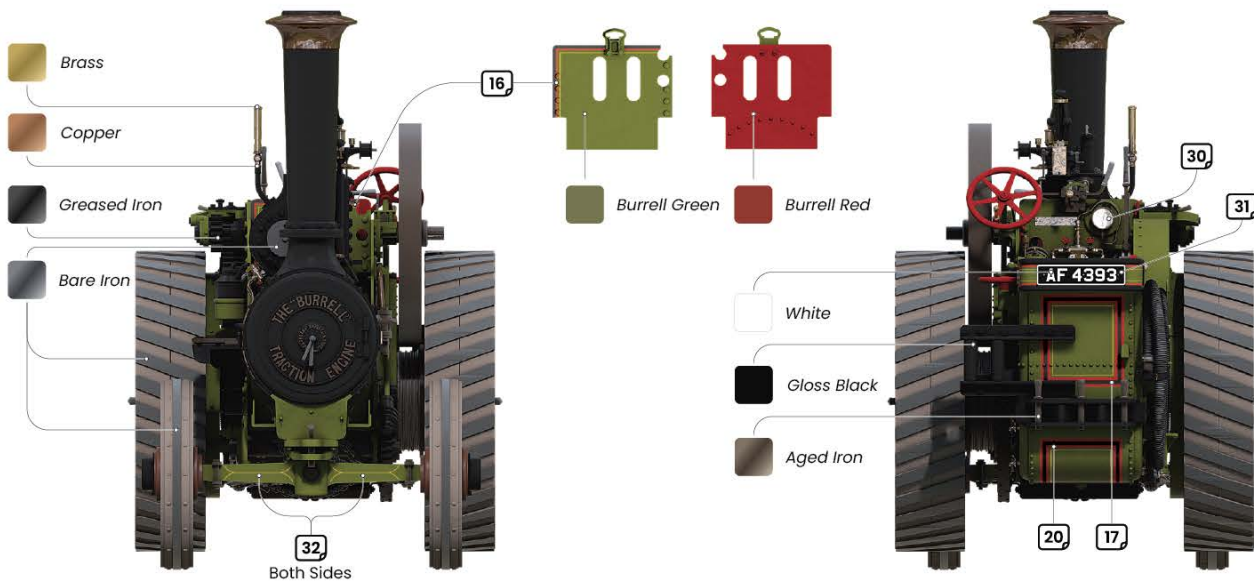
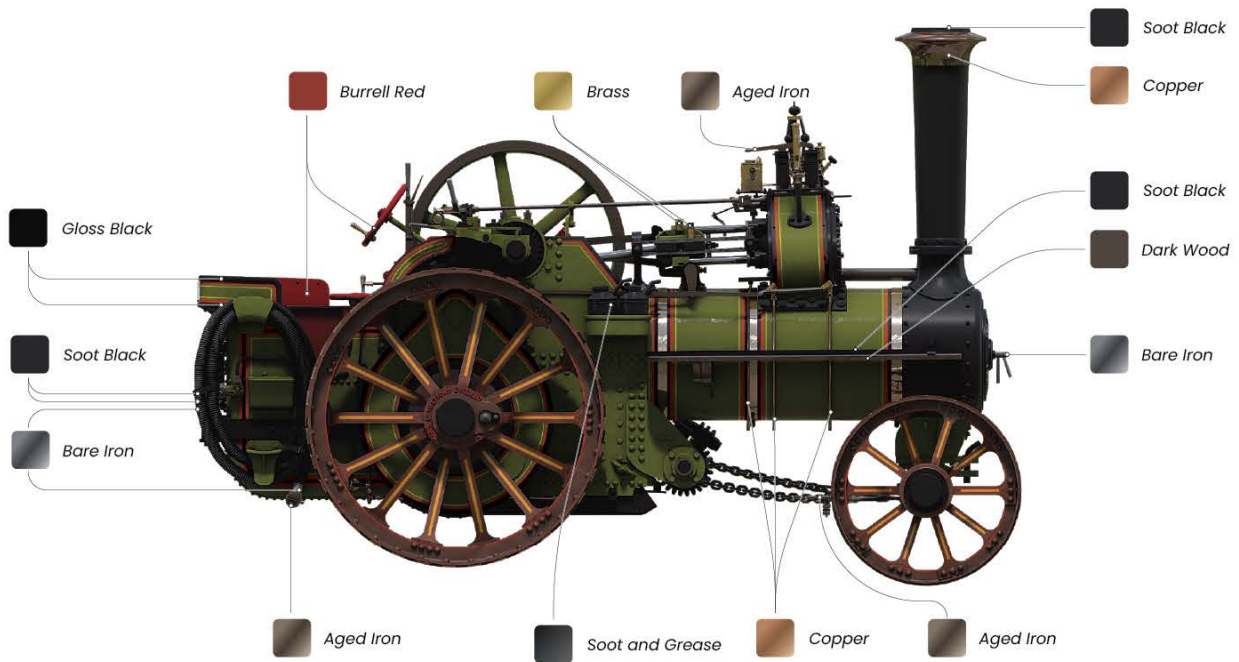
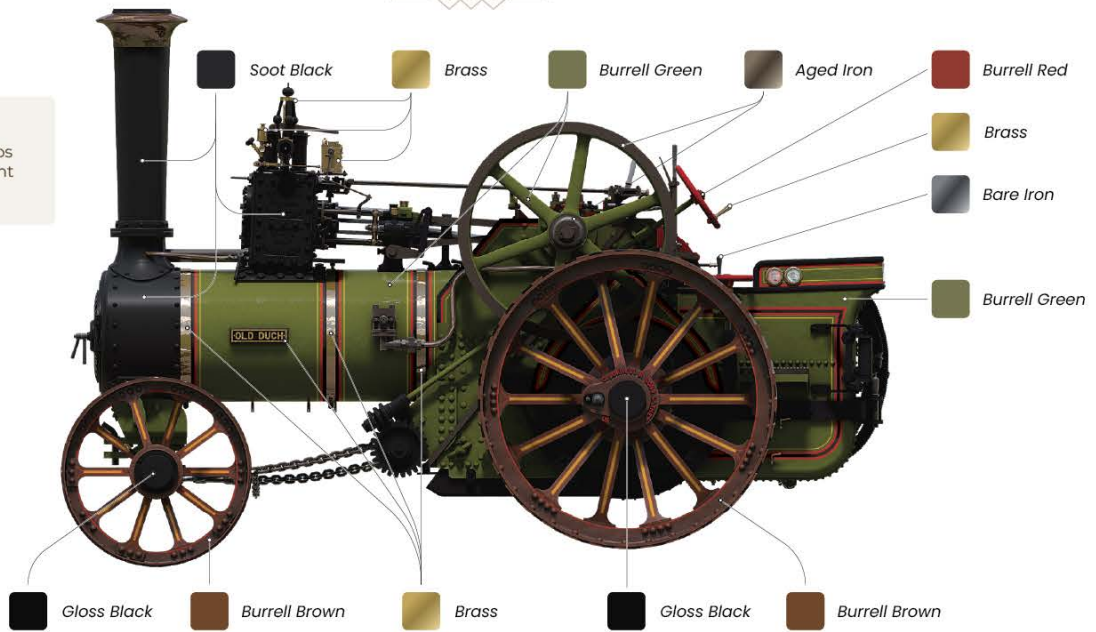
Original research, design, and model development by David and Amanda Jones.

Executive production by SteamX.

# Colour Scheme A — Preserved Finish

## Paint & Decal Placement

**Painting Notes**  
Refer to assembly steps for detailed component painting references.



1901 Burrell Compound Traction Engine "Old Duch"  
Registration No. AF 4393  
Works No. 2417  
Built by Charles Burrell & Sons Ltd., 1901

# Colour Scheme A — Preserved Finish

## Decal & Paint Placement

**Colour Scheme A — Preserved Finish**

**Decal & Paint Placement**

**Labels:** Copper, Aged Iron, Greased Iron, Dark Wood, Polished Iron, Burrell Red, Soot and Grease, Bare Iron, Soot Black.

**Callouts:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33.

**Front Wheel Spoke Placement:** 6 x10 per side, 9 x4 per side.

**Rear Wheel Decal Placement:** 1, 2, 3, 4, 5, 10.

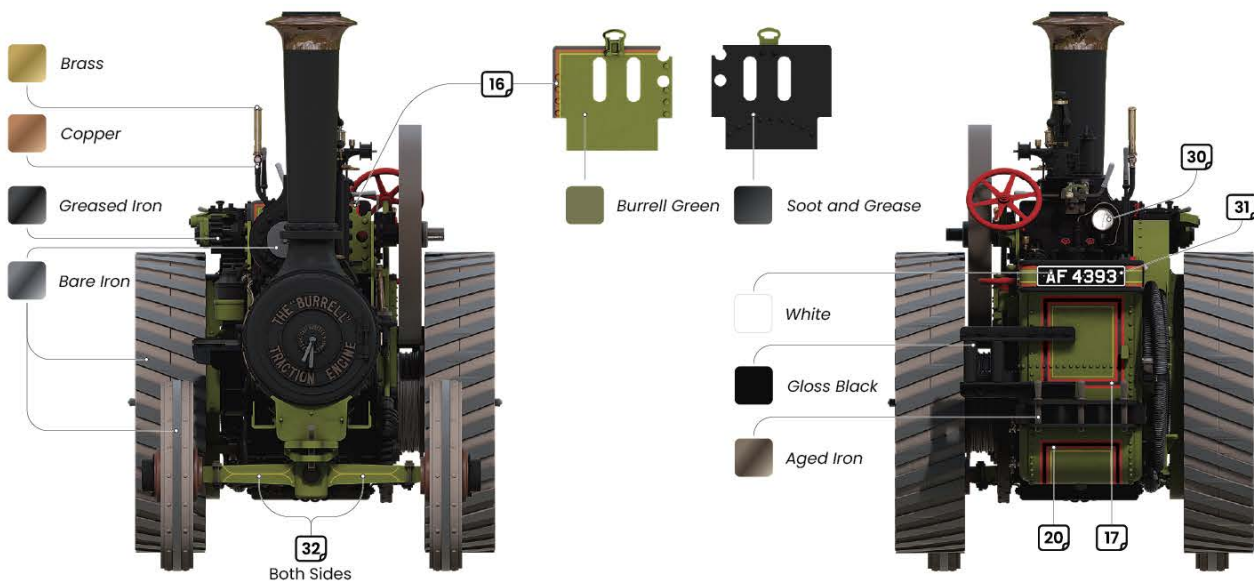
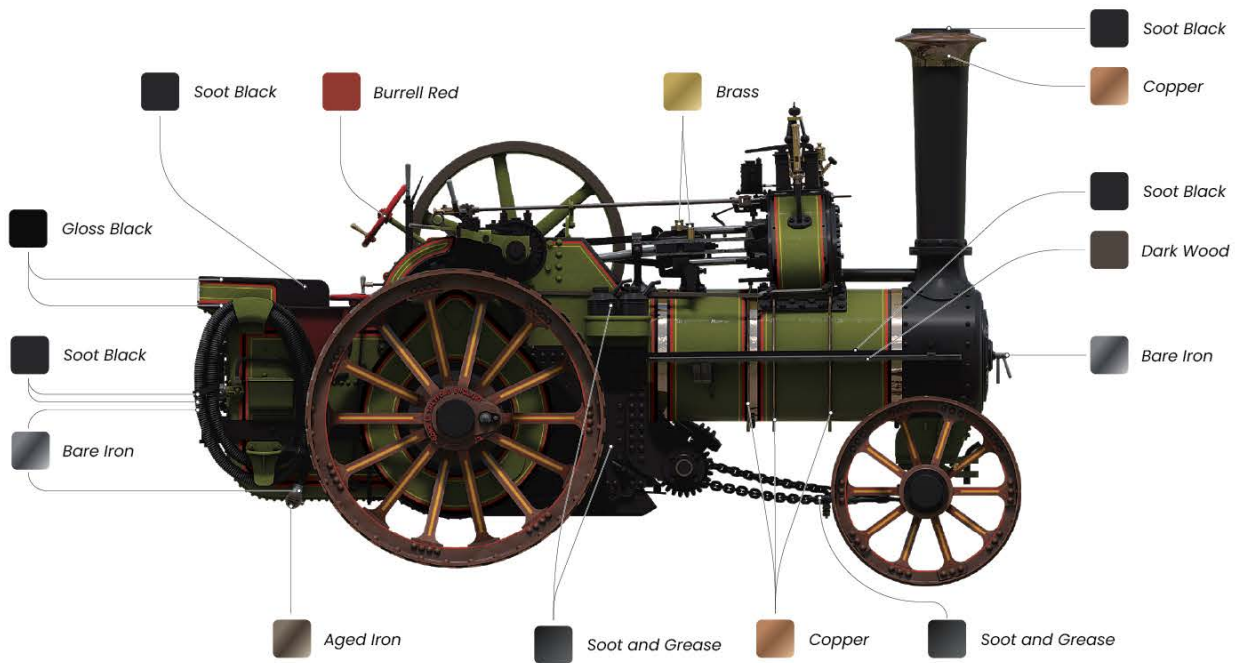
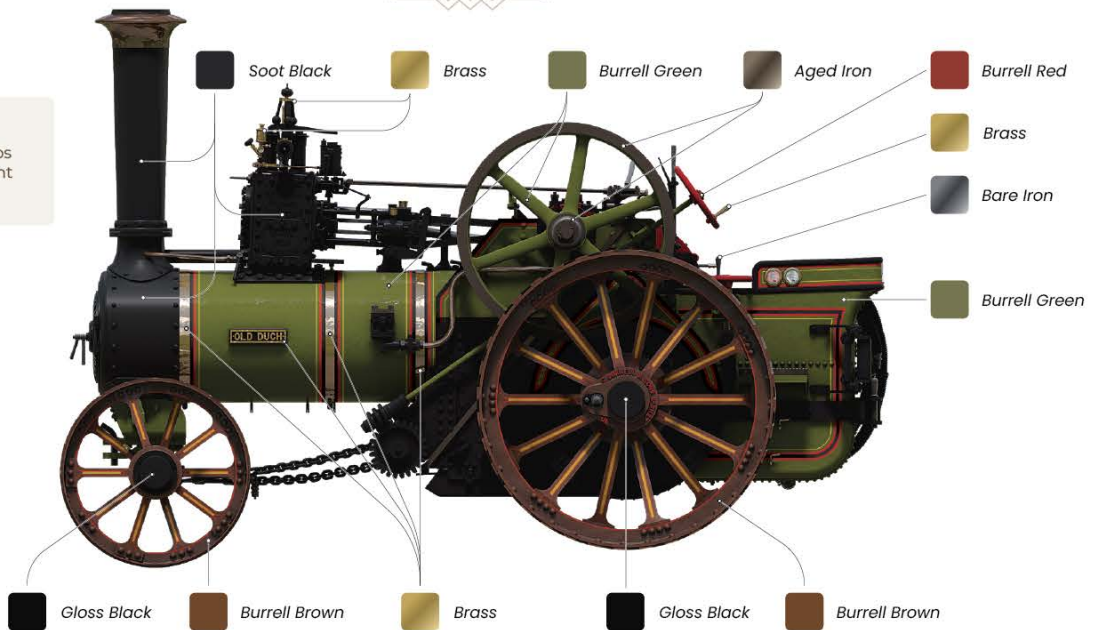
**Application Instructions:**

- Apply Decals to the outer side of the rear wheels only.
- Apply to both sides of each front wheel spoke.

# Colour Scheme B — Working Finish

## Decal & Paint Placement

**Painting Notes**  
Refer to assembly steps for detailed component painting references.



1901 Burrell Compound Traction Engine "Old Duch"  
Registration No. AF 4393  
Works No. 2417  
Built by Charles Burrell & Sons Ltd., 1901

# Colour Scheme B — Working Finish

## Decal & Paint Placement

**Colour Scheme B — Working Finish**

**Decal & Paint Placement**

**Legend:**

- Copper
- Aged Iron
- Greased Iron
- Dark Wood
- Polished Iron
- Burrell Red
- Soot Black
- Greased Iron
- Aged Iron
- Soot and Grease
- Bare Iron
- Dark Wood
- Soot Black

**View 1: Front View**

Callouts: 15, 14, 15, 19, 33, 21, 23, 24

**View 2: Rear View**

Callouts: 8, 21, 13, 11, 12, 18, 27, 28, 15, 14, 15, 7

**View 3: Side View**

Callouts: 13, 11, 12, 15, 14, 15, 7

**View 4: Wheel View**

Callouts: 22, 26, 25, 22, 6, 9, 6, 9, 1, 2, 3, 4, 5, 10, 1, 2, 1, 1, 2, 1, 2

**Wheel Spoke Placement:**

- 6, 9: Apply to both sides of each front wheel spoke.
- 6, 9: x10 per side
- 9: x4 per side

**Decal Placement:**

- 1, 2, 3, 4, 5, 10: Apply Decals to the outer side of the rear wheels only.

**THANK YOU FOR  
CHOOSING STEAMX**



Visit ScaleX official YouTube  
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