

STARTING GATE OWNER'S MANUAL



Silver Starting Gate

OPERATION & MAINTENANCE

STERILINE RACING PTY LTD - ABN 98 001 593 059
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STARTING GATE

Issue: 2**Machine Identification****Page: 2**

Manufactured by Steriline Racing Pty Ltd
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AUSTRALIA

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Model Silver
X Stall

Serial number

Construction date



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Specifications

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Operating Requirements

Tractor Size Must be adequate to pull weight of gate (refer to weights below)
Where Hydraulic steering is fitted:
Must be able to supply a continuous flow of oil to hydraulic system.
Maximum Flow: 60 litres/min
Pressure set by Steriline technician during commissioning

Tyre Pressure 220kPa (32 psi) recommended

Replacement items

Main control box 12 volt sealed lead acid battery with a 22 amp/hr rating
Battery **Keep batteries in a charged state at all times to maximise life.**
(ref page 5)

Main control 15 amp circuit breaker (resettable).

No. stalls	3	4	6	8	10	12	14	15	16	17	18	19	20	25
Length (m)	4.32	5.22	7.02	8.82	10.62	12.42	14.22	15.12	16.02	16.92	17.82	18.72	19.62	24.5
Width (gates closed)	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69
Height (not incl. red light)	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.86	3.86	3.86	3.86	3.86	3.86	4.26
Height (top of red light)	3.83	3.83	3.83	3.83	3.83	3.83	3.83	4.03	4.03	4.03	4.03	4.03	4.03	4.43
Weight (t)	1.64	1.85	2.26	2.67	3.07	3.48	3.88	4.09	4.29	4.50	4.69	4.90	5.10	7.50

All dimensions are metric. Weights are approximate and depend on optional features of gate.

Note: The draw bar adds 1.84 metres to the lengths listed above.

$$1' (12'') = 0.3048\text{m}$$
$$1\text{m} = 39.369''$$

$$1000\text{lb} = 0.3732\text{ t}$$
$$1\text{t} = 2679.23\text{ lb}$$

Conversion figures for reference only check with local Authorities.

CAUTION:

Starting Gates 20 stall and over are required to have towing cables fitted while towing. Failure to do so could result in irreparable damage.

Check overhead clearances when towing.

Maximum towing speed of starting gate = 15 km/h

1. Check all front and back gates



- Look for damage, stress or excessive play
- Check release arm for free movement
- Check release arm operating rod connector for free movement
- Check for loose hinges
- Check front gate catches for damage
- Check back gates & handle mechanism for damage
- Make sure all padding is fitted correctly
- Check for any rattles or loose fittings

Adjust as necessary



2. Lubricate Upper & Lower Front Gate Hinge Points

- Use WD 40 lubricant or similar
- Lubricate both the upper and lower hinge points
- Check for excessive wear or sticky operation

Adjust as necessary



3. Lubricate Rotary Catches and Operating Rods on Front Gates

- Use WD 40 lubricant or similar
- Check for excessive wear or sticky operation
- Work lubricant into roller catch if necessary to ensure smooth operation
- Ensure operating rods have a smooth action without any catching or friction

Adjust as necessary



4. Charge the battery in the main control box with the automatic charger provided



- The control box has a charging socket inside for the system battery. The Gate and Light circuits are protected by a 15Amp resettable circuit breaker.

- **DO NOT** switch the battery charger on until it is connected to one of the sockets inside the control box. Switching the power on before connecting may cause the corresponding fuse to blow when connected.



- When using the battery charger, it is recommended that it is connected to a power outlet fitted with a safety switch and/ residual-current device trip switch for your protection.

CAUTION
Customer must implement routine testing and tagging of leads

Battery Charging

- **Initial charge:** the battery must be charged for a **minimum of 24 hours** when new (eg: **an initial charge of 24 hours is required upon delivery of starting gates**, and whenever the batteries are replaced).
- Thereafter, charge the battery for a **minimum of six hours** before each race day and check charger status LEDs on the battery charger for level indication.
- The battery should be charged for a **minimum of 12 hours per month** regardless of whether the starting gate has been used or not.
- **Battery life is maximised by maintaining each in a fully charged state when the starting gate is not in use.**
- **The battery should never be below 12 volts. (ref page 11)**

**S | T | E | R | I | L | I | N | E**
R A C I N G**User Instructions:****Battery Monitor Function**

The microprocessor controlled Electronic Battery monitor has been designed to:

- a. Continually monitor and display the current charge state of the battery
- b. Every 5 seconds the LEDs flash the charge state of the battery
- c. Allows an independent battery test to be performed at any time
- d. Audible alarm beeps at critical battery level
- e. The charge state of the battery is displayed using tri-colour LED

GREEN	condition good
ORANGE	condition fair
RED	imminent failure (critical)

Audible alarm **beeps** will occur at the **critical** battery level.

Manual Battery "Load-Test" Operation:

- a. To start the battery Load-Test, press the square RED button on the front panel
- b. The tri-colour LED will continually change colour from green to orange to red etc. during this process
- c. After 10 seconds the test is completed and the current condition of each battery is indicated by the steady colour remaining on the corresponding Tri-Colour LED
- d. This condition will remain visible for 6 seconds, after which the automatic monitor state will resume

Note:

- a.) This test can only be performed at least 60 seconds after the power being switched on
- b.) This test can only be repeated after a 60 second delay has timed out
- c.) The battery test employs a load-current and generates heat – should the temperature exceed a safe level, then the monitoring function reports an "Overheated Condition" by continually flashing ORANGE
To remedy this; stop testing until the system has cooled down (approximately 5 minutes). If this condition persists, contact the dealer for assistance

10/08/2016 KJT

5. Perform Front Gate Release Tests



Hold Solenoid Arm firmly
by handle during test.

WARNING

**Beware of Arc of Travel of Solenoid Arm Lever. Stand clear
of Arc of Travel at all times.**

Check all gates release at the same time:

- Close the gates and slowly release the Solenoid Arm Lever.
- From the point at which the first gate opens, all other gates should open within an arc of approximately 75mm measured at the end of the Solenoid Arm Lever.
- If gates are not opening within the specified distance, the following causes are possible:
 - Operating rod may require adjustment (screw nut upward to make gate open sooner).
 - Operating shaft may be damaged - bent or jammed (disconnect springs on overhead operating shaft - shaft should move freely).

Check for slow opening gates:

- Close the gates.
- Release the Solenoid Arm Lever to check for even opening of front gates. If one or more gates open slower than others, the following causes are possible:
 - Lack of spring tension on front gate.
 - Front gate hinge may be too tight. (adjustment required)



A slow gate when compared to the others
either side—this requires adjustment

To adjust front gate hinges tighten the square head bearing set screw to finger tight plus 1.1/4 revolutions with a spanner (fine tune as required).

To adjust back gate hinges tighten the square head screw to finger tight plus 1/4 revolution with a spanner (fine tune as required).

Check for delayed opening of all front gates:

- If a delay is noticed after activating the start button or manual start lever, the following causes may be possible:
 - Lack of spring tension on the overhead operating shaft.
 - The overhead operating shaft may be damaged.
 - Check for tightness or binding in the Solenoid Arm pivot point.

6. Check Tyre Pressures



- Check all tyre pressures (*including any spare tyres.*)
- Recommended tyre pressure is 220kPa (32 Psi).
- Check tyres for cuts, cracking or other signs of damage.
- Use soapy water on the tyre valve to check for leaks.
- Remove any foreign objects from tyre treads.
- Check Wheel Nuts are secure. Tightening torque 112Nm (83lbf-ft)

Note: Tyre illustration may differ depending on individual specifications.

Caution: Ensure only trained personnel use air to inflate tyres.
Always use an air hose with inline pressure gauge.



7. Check Position of Overhead Operating Shaft

- Ensure that the Overhead Operating Shaft Levers are in the horizontal position when the gates are closed and latched.
- Ensure that the Overhead Operating Shaft is functioning correctly and that there are no obstructions.

8. Generally Inspect The Starting Gate

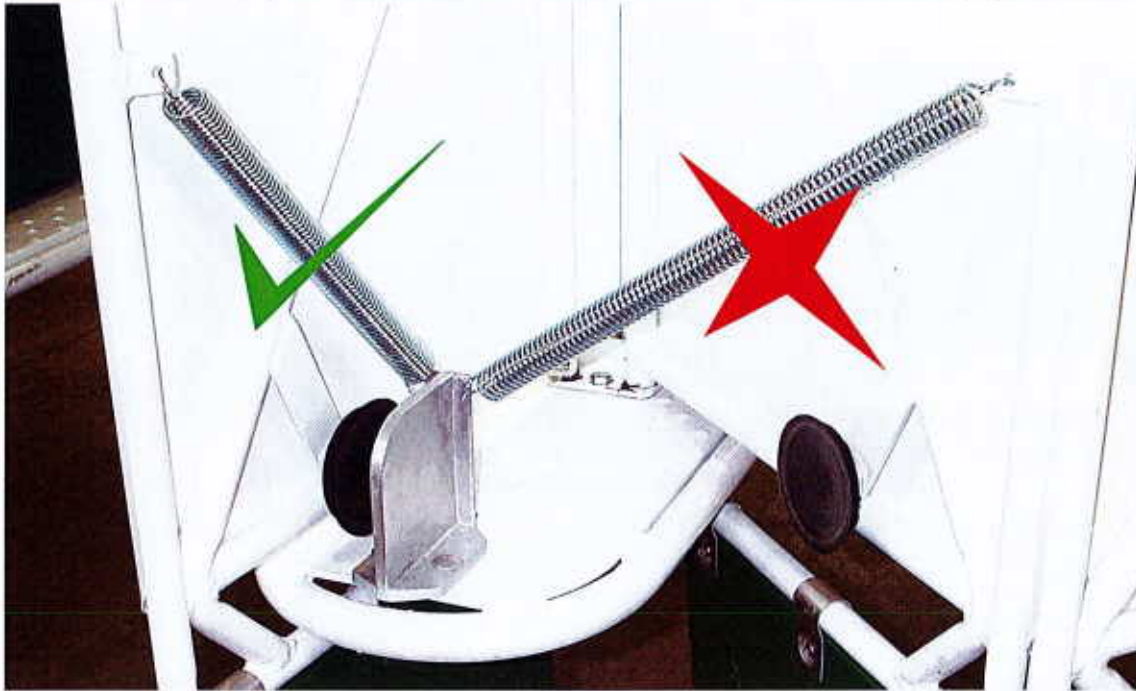
- Check for anything unusual.
- Check that all bolts are tight and that all moving parts around the gate move freely.
- Check for rust around any area and touch up after applying a suitable rust converter if necessary (*Plasti-Kote 367 Gloss White*) spray paint is recommended.
- Check all electrical connections and leads for cuts, fractures or other damage.
- Keep the starting gate clean - this will allow you to see potential problems before they become serious!

STARTING GATE MAINTENANCE

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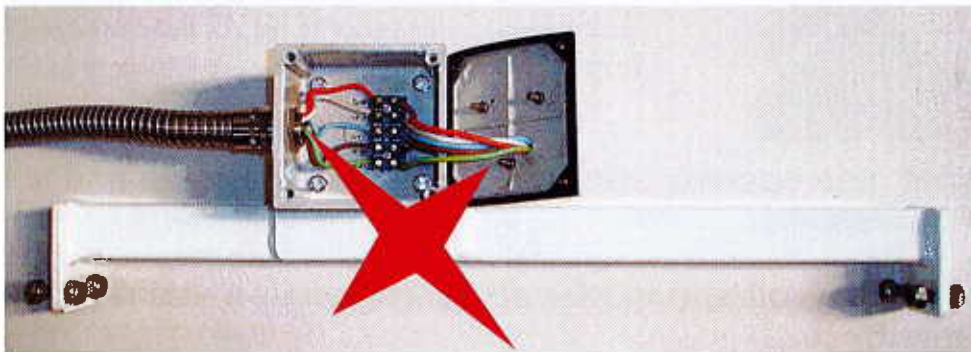
Before and After Each Race Meeting

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Note: Front Gates

When not in use, leave the front gates **open** at all times - this reduces tension on the springs and increases their life span.



Warning: Electrical Enclosures

Covers on all electrical enclosures should be kept **shut under all circumstances**. Enclosures should be opened by trained and **qualified personnel** only.

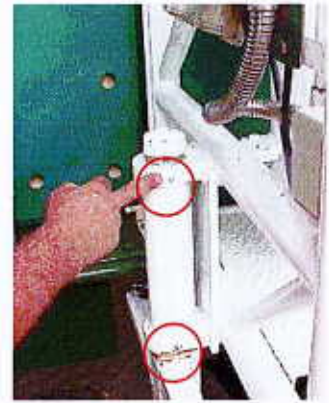
NOTE: Illustration may vary depending on Starting Gate model.



1. Check Steering Assembly

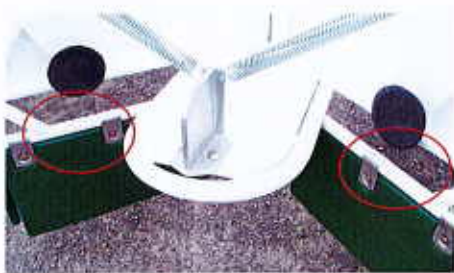


- Grease the tow link at each end of the starting gate if necessary.
- Ensure all bolts are tight.
- Check all hydraulic hoses (where fitted) for leaks, rubbing or other damage.
- Check tie rod ends for damage or excessive wear.



- Apply grease to both the upper and lower grease point of each wheel mount on the corners of the starting gate.
- Check for smooth movement of wheel mount shaft. If movement is not smooth, wheel mount should be removed and checked.
- Check for contaminants, damage or excessive wear.
- Re-grease the Wheel Mount Shaft when re-assembling.
- Contact Steriline Racing for supply of spare parts if required.

2. Perform ALL checks as described in 'Before Each Race Meeting'. (ref. pages 4-9)



3. Check suction cups on front gates for perished rubber

- If fitting new suction cups, screw the cup until all surfaces contact and then hold nut with a spanner and tighten cup by hand. *Take care not to overtighten - the bolt may separate from the cup.*

4. Check front gate opening springs for adequate tension and range of movement.
5. Check operating rod springs for adequate tension and range of movement.
6. Check overhead operating shaft springs for adequate tension and range of movement.
7. Check all electrical leads and connections.
8. Check all nuts and bolts on all starting gate components are tight and in satisfactory condition. Some padding may need to be removed to check and tighten bolts.

STARTING GATE MAINTENANCE

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Check Six Monthly

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1. If the Starting Gate has been used less than four (4) times in the last six months:

- Perform ALL Checks described in:
‘Before and After Each Race Meeting’
‘Check Monthly’

Every Twelve Months

1. Perform ALL checks as previously described.

2. Replace the battery in the main control box

- Use a 12 volt sealed lead acid battery with a rating of 22 amp/hr.
- Remember to charge the new battery for a minimum of 24 hours before use.
- **Ensure batteries are kept in a charged state at all times as this will maximise battery life.**
- The battery should be charged for a **minimum of 12 hours per month** regardless of whether the starting gate has been used or not.

3. Check the Circuit Breakers in the main control box

The main control unit is protected by twin 15 amp circuit breakers. Check to ensure that they are in the operational state by pressing them into the latched condition.

Steriline Racing recommends that starting gates are serviced by a qualified technician every 6 months or yearly, depending on usage and operating environment.

Check with your local racing authority as other rules may apply.

OTHER POINTS TO NOTE:

Store your Steriline starting gate under cover and out of the elements where ever possible. Transmitter units should be stored indoor and left on charge until next use.

Clean your Steriline starting gate regularly. This will extend paint life, starting gate appearance and maximise sponsorship opportunities.

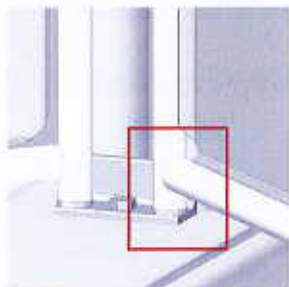


Front Gate

Operating Rod Connector
Maintain correct float
Between Nyloc nut &
Operating Rod Connector



Front Gate upper mount
Hinge point



Front Gate lower mount
Hinge point

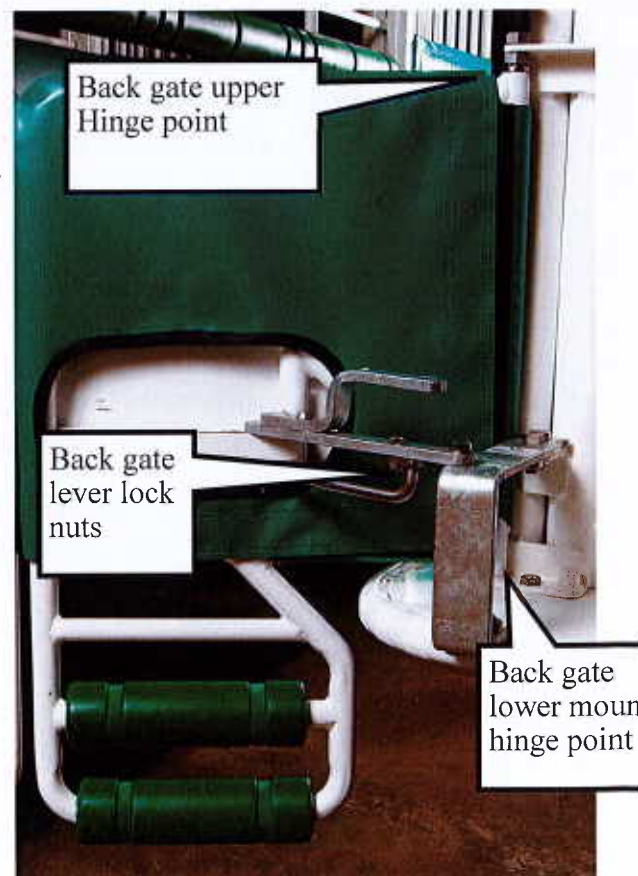
1. Undo Nyloc nut on the operating rod connector.
2. Loosen Hinge lock nuts at top hinge point to allow gate to be lifted off the lower hinge point.
3. Installation is the reverse of the above steps.
4. Install Hinge set screw finger tight, then tighten 1.1/4 turns (5 flats) for correct hinge tension. Tighten hinge lock nuts to maintain tension.
5. Perform a test start. If gate opens too slowly adjust hinge set screw & hinge lock nuts as required.

Note

Refer drawings in parts drawings appendix for detailed view.

Back Gate.

1. Undo lock nuts on the Back Gate Lever and remove.
2. Loosen hinge lock nuts at upper mount hinge point to allow the gate to be lifted off the lower mount hinge point.
3. Installation is reverse of above steps.
4. Install hinge square head set screw to finger tight then tighten 1/4 revolution with spanner
5. Test gate operation. Adjust hinge set screw and hinge lock nuts as required.



STARTING GATE OPERATION

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Racetrack Towing and Positioning

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1. **Secure starter lead**
2. **Ensure draw bar is securely hitched to the tractor**



- When connecting the draw bar to the tractor, it is preferable to use the designated tow bar on the tractor rather than the 3 point linkage hitch.

Note that the illustration may differ due to different draw bar configurations that are available for use with either a 4WD vehicle or Tractor towing options.

3. **Connect hydraulic hoses to the correct tractor ports (where hydraulic steering fitted)**



Note: port configuration may be different to that shown

- Ensure that the pressure line and tank (return) line are connected correctly. The return line is fitted with a one way check valve.
- The tractor must be able to supply a continuous flow of oil to the starting gate hydraulic system.

4. **Ensure trailing end operator is in position before moving the gate (MANUAL STEERING ONLY)**



- Station a person at the rear corner of the gate to communicate with the tractor driver if necessary. This person can also help judge the distance between the outer edges of the gate and obstacles.

5. **This is the correct position for the hydraulic steering operator at the rear of the gate (HYDRAULIC STEERING ONLY)**



- This person can see the tractor driver and can also look over the wheels to make sure that they are turned in the correct direction. This person dictates the speed of the gate whilst under tow.

TOWING SPEED MUST NOT EXCEED 15 KM/H.



6. Steering Lock Pin

- A steering lock pin is provided to secure the **rear end** steering components in the straight-ahead position when not precisely positioning the gates.
- The pin will prevent the rear end veering off course as the gate is towed.
- The pin must be removed for precise positioning so that the trailing end operator (manual steering) or hydraulic steering operator can manipulate the gate into position.

CAUTION:

Ensure that the lock pin is removed when hydraulic steering is active. **Failure to do so will damage components.**



7. **CAUTION: Over-steering can cause damage to the steering components**

- Stickers indicate maximum limits for the draw bar on full lock.
- Planning the route for the gate is generally the best method to ensure that excessively sharp turns are not required.

Note: Tow Link may differ slightly to Photograph shown.

8. **The maximum recommended towing speed is 15km/h or a brisk walking speed**

- In crowded or cluttered areas, a slower speed is strongly advised.
- On steep inclines, proceed slowly in low range.
- Slippery inclines may require a 4x4 capable tractor to maximise safety.

9. **Ensure rear wheels are set in the straight ahead position and the tractor handbrake is engaged when the starting gate is in operational position**

- Wheel chocks are recommended.
- A standby tractor is advisable in case of the failure of the towing tractor. This is important if the gate has to be moved after a start to allow horses to race past.



10. Disconnection of Hydraulic Couplings (Hydraulic steering only)

- Take care when disconnecting hydraulic couplings.
- Hydraulic oil can be very **HOT**.
- A rag placed under each coupling when disconnected will catch the few drops and prevent them contaminating any grass.
- Secure couplings to protect against contamination and damage whilst towing.



11. Flow Control Valve Adjustment (Hydraulic steering only)

The flow control valve under the end panel is set in the factory to No3 mark. Re-set if knocked out of alignment back to location hole.



12. Towing cables (Optional / Large starting gates)

Towing cables are optional. However, are mandatory on large 20—25 stall units. One on either side when towing ensures that the end panels remain square to the truss bridge and excessive twisting/buckling while in transit of the start gate is avoided.



OTHER POINTS TO NOTE:

Tractor driver, rear steering operator and observers must work together. Failure to work as a team may result in injury to others or damage to the starting gate or surrounds. The rear (hydraulic) steering operator is responsible for informing the tractor driver of directions to take and speed to travel. If manual steering, make sure one person is responsible for telling the tractor driver what turns to take so that a clear message is given to the driver. Take care and proceed slowly if unsure. Stop and check clearances first if unsure.

WARNING

Check overhead clearance:
especially when entering sheds and around overhead power lines.

SUMMARY OF PRECAUTIONS

Precautions to observe when towing & positioning the Starting Gate include, but are not limited to:

Riding on Starting Gate Prohibited

- No person is permitted on the Starting Gate while it is being towed except for the steering operator

Observe Speed Limits & Terrain

- The speed limit when towing the Starting Gate is 15 km/h. This applies when towing on well paved, straight and level surfaces.
- Tow tractor operators must ensure they travel at a suitable speed, based on the terrain, and not exceeding 15 km/h.
- The speed limit when turning is 5 km/h

Steering Lock Pin

- Ensure Steering Lock Pin is removed from the towing end of the Starting Gate, prior to towing, and fit to the opposite end as required.

Maneuvering and Positioning

- Ensure adequate clearance between Starting Gate, tractor, fixed and overhead structures when towing.
- Ensure tractor remains connected to the Starting Gate during use & the tractor hand brake is applied when the Starting Gate is in position.
- When not in use, ensure Starting Gate is positioned on a flat surface with wheels chocked to minimize any movement.
- When not in use, ensure Draw Bar is secured with chain at all times.

Ensure that the caution signs displayed on the Starting Gate are not removed.

Implement routine checks of the caution signage to ensure there is no damage.

RACE STARTS

Electric Start - using Starter's Lead:

- Step 1. Turn to release the Starters Button on the Starters Lead until out. Connect the lead to the Gates, Align cut-out in Mil-spec adaptor to front.
- Step 2. Turn on main power supply to the gates - leave power on for the remainder of the day. (external green light on front door) - Shut control box door.
- Step 3. Pull the Solenoid Start Arm down until it engages with the catch on the main Control Box.
- Step 4. Close front gates before loading the horses by forcing the gate catch through the latch. **Ensure the catch is fully engaged.**



***Note:** a test start should be performed before the meeting and each race to ensure that all the gates open uniformly. Ensure that the starters lead is connected securely before each start. The check lamp on the Starters Lead will illuminate if the lead is properly connected and power is available.*

- Step 5. When all the horses have been loaded and all the handlers are clear, the assistant starter will typically indicate to the starter that all the horses are under the starter's control (local procedures may differ).
- Step 6. **To start race** - press the start button on the Starters Lead to open the gates (check green light is on—reset button if required).
- Step 7. Unplug the Starters Lead after the last race of the day and place in the stowage container - keep the door shut.

Note: The Stall should be stored with the front gates open to minimise the tension and increase the life of the release springs (see illustration on page 9).

WARNING

- **Beware of the arc of travel of the Solenoid Start Arm when the Start Button is pressed.**
- **When turning the power off ensure the front gates are clear in the event of the gates opening.**

STARTING GATE OPERATION

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Operating a Steriline Starting Gate

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In the event of failure of the starter's lead:

If the start button on the Starter's Lead fails to open the gates after the gates have been prepared for a start, the race can be started using the manual start button on the underside of the solenoid control box. Pushing this button manually actuates the catch inside the control box and releases the Solenoid Start Arm (Photo Page 19).

Note:

Proceed with manual starts using the Manual Start Button (see procedure page 19) for the remainder of the race day or until the issue with the starter's lead is resolved.

WARNING

Beware of the arc of travel of the Solenoid Start Arm when the Manual Start Button is pressed. Stand to one side to stay clear of Solenoid Start Arm arc.

RACE STARTS

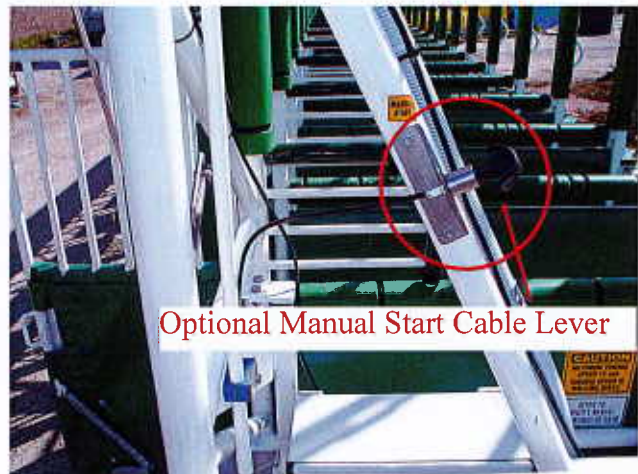
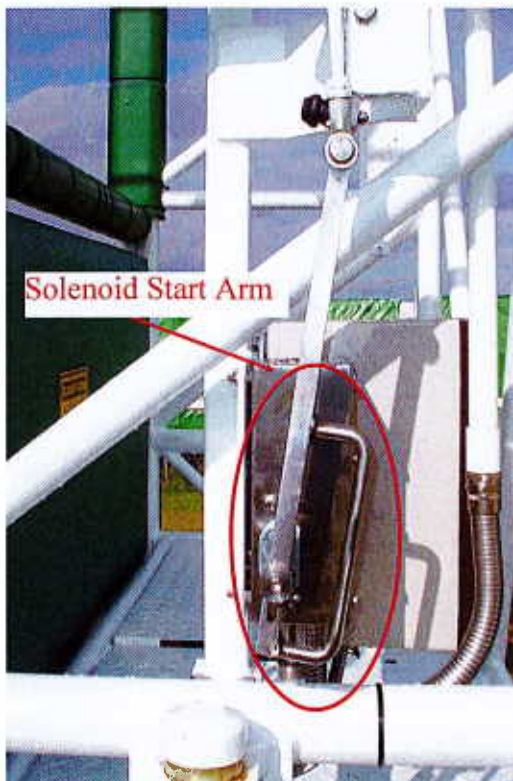
MANUAL START - using Manual Start Button:

- Step 1. Disconnect the Starters Lead if still connected to the Start circuit.
- Step 2. Pull the Solenoid Start Arm down until it locks into the Catch.
- Step 3. Close the gates before loading the horses by forcing the gate catch through the latch.
Ensure the catch is fully engaged.
Note: a test start should be done before the meeting to ensure that all the gates open uniformly.



Step 4. When all the horses have been loaded an appropriate signal is given to indicate that all the handlers are clear and all the horses are under the starter's control (local procedures may differ).

Step 5. **To start race** - press the Manual Start Button. Alternatively, When optionally supplied, pull the cable lever as shown below - Fitted between the operators end panel and the operators catwalk.



NOTE:
Illustrations may vary slightly depending on starting gate model, customer requirements and options fitted.

WARNING!

Beware of the arc of travel of the Solenoid Start Arm.

Front Gate Independent Release

Steriline Racing starting gates include as standard the safety feature of independent release for each front gate.

Each pair of gates can be opened from inside the stall, independently of all other stall gates.

- To open a single pair of gates, grasp the stainless steel tube of the operating rod just below the thick washer and pull firmly upwards (as illustrated).



- The gates will open rapidly as during a normal gate start, but all other gates will remain closed.

CAUTION:

Ensure there is nobody in front of the gates before operating the independent release.

- The individually opened front gates can be closed again as usual - by forcing the gate catch through the latch, ensuring the catch is fully engaged. The starting gates can then be opened as usual for a race start.

NOTE: Illustrations may vary slightly depending on Starting Gate model.

Joining Gates Together (Gate Coupling):

- Position the starting gates end to end on the racetrack ready for the start.
- Turn power off on both gates
- Plug the connecting cable into the sockets mounted on the end panels of the adjacent gates.
- Plug the starters control lead into either of the two unused sockets mounted on the end panels. The Position of the starter will determine which end of the gate to use.
- Power up both gates—check both green LEDs are illuminated on the mechanical cable Starters Lead.
- Each Green LED on the Starter's Handpiece indicates the corresponding gates connected
- Make sure starter button is released to the ready-position.
- Carry out a test-start as required by local procedures
- Ensure the stall numbers are consecutive where appropriate.
- Start the race as usual.

NOTE: *The Coupling Sockets and the Starters Sockets are designed to be interchangeable and can be used for both operations depending on the gate configuration. Illustrations may vary slightly depending on Starting Gate model.*



