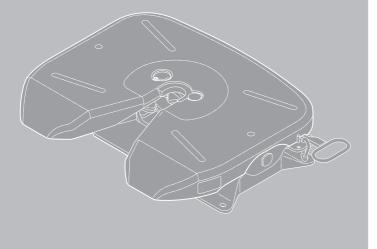


# **Owner's Manual**

# FW20 Series Fifth Wheel

Operation, Maintenance and Troubleshooting Procedures; Warranty Information





XL-FW10091UM-en-CN Rev B



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# Introduction

This manual provides the information necessary for the proper operation and maintenance of HOLLAND<sup>®</sup> FW20 series fifth wheels.

**NOTE:** For HOLLAND® replacement components contact SAF-HOLLAND® Customer Service Refer to this manual's back cover for the nearest location.

## Notes, Cautions, and Warnings

You MUST read and understand all of the procedures presented in this manual before operating or starting work on any HOLLAND® FW28 Series fifth wheel

**IMPORTANT:** Keep this manual in a safe location for future reference.

Proper tools MUST be used to perform the maintenance and repair procedures described in this manual.

Throughout this manual, you will notice the terms "NOTE," "IMPORTANT," "CAUTION," and "WARNING" followed by useful product information. So that you may better understand the manual, those terms are defined as follows:

**NOTE:** Includes additional information to enable accurate and easy performance of procedures.

IMPORTANT:	Includes additional information that if not followed could lead to hindered product performance.
CAUTION	Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in property damage.

**A**CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

**A**WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



# 1. Model Identification

Fifth wheel serial tags are located on the release handle side of the fifth wheel top plate and positioned near the pickup ramps (*Figure 1*).

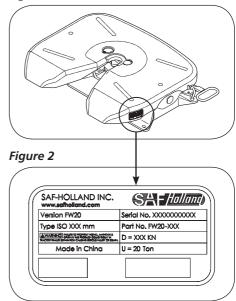
The part number and serial number are listed on the tag **(Figure 2)**.

# 2. Decal Requirements

Decal XL-FW20008DC-en-CN (*Figure 3*) enclosed in plastic bag with the Owner's Manual, MUST be installed near the fifth wheel and easily viewed by the operator. Position the decal as illustrated (*Figure 4*).

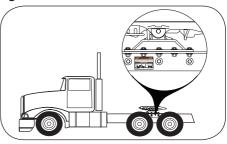
**NOTE:** Make sure surface is free of oil and grease before applying decal.

It is the responsibility of the end user to periodically inspect the decal and ensure that it is clean and completely legible. If the label is missing, loose, damaged or difficult to read, contact SAF-HOLLAND® Customer Service to order replacements immediately. Refer to this manual's back cover for the nearest location. Figure 1











# 3. General Safety Instructions

Read and observe all Warning and Caution hazard alert messages in this manual. They provide information that can help prevent serious personal injury, damage to components, or both.

All fifth wheel installation and maintenance MUST be performed by a properly trained technician using proper tools and safe procedures.

**IMPORTANT:** Prior to operation of the fifth wheel, you must be thoroughly satisfied that the fifth wheel has been appropriately installed on the vehicle.

Failure to properly install the fifth wheel could result in tractor-trailer separation which, if not avoided, could result in death or serious injury.

For proper installation procedures, refer to the SAF-HOLLAND® Installation Manual XL-FW10008BM-en-CN (available on the Internet at www.safholland.cn).

## 

Failure to follow all the operating procedures contained in these instructions could result in a hazardous condition or cause a hazardous condition to develop which, if not avoided, could result in death or serious injury. These instructions apply to the proper operation of your fifth wheel only. There are other important checks, inspections, and procedures listed in the Owner's Manuals for your tractor and trailer that are necessary, prudent, and/or required by law.

Only SAF-HOLLAND<sup>®</sup> Original Parts should be used.

A list of SAF-HOLLAND® technical support locations that supply SAF-HOLLAND® Original Parts can be found on the Internet at www.safholland.cn or contact Customer Service. Refer to this manual's back cover for the nearest location.

Updates to this manual will be published as necessary on the Internet at www.safholland.cn.



# 4. Fifth Wheel Intended Use

- 1. Pulling trailers with standard 50 mm kingpin as defined in ISO 337:1981, which are in good condition and securely mounted or locked in position in the trailer.
- 2. Transporting loads that are within the maximum fifth wheel rated capacities: 150 kN D-Value 20 tonne Vertical Load.
- In moderate duty applications. 3.
- **IMPORTANT:** SAF-HOLLAND<sup>®</sup> definition of moderate duty applications is less than 10% off-road use.
- SAF-HOLLAND<sup>®</sup> definition IMPORTANT: of off-road refers to terrain on which a tractor-trailer operates which is unpaved and rough, or ungraded. Any terrain not considered part of the public highway system falls under this heading.
- As recommended in SAF-HOLLAND® 4 literature available on the Internet at www.safholland.cn.

# 5. Fifth Wheel Non-Intended Use

1. Operating with a non-ISO 337:1981 compliant 50 mm kingpin, such as kingpins which are bent, improper size or dimensions, not secured to maintain ISO 337:1981 configuration, or which are installed in warped trailer bolster plates, or upper coupler and fifth wheel lube plates that do not maintain the ISO 337:1981 50 mm kingpin dimensions. Refer to SAF-HOLLAND® Service Bulletin XL-SB004-01 (available on the Internet at www.safholland.cn) for more information on fifth wheel lube plates.

# WARNING

- Failure to couple with a ISO 337:1981 compliant standard 50 mm kingpin could result in improper coupling, allowing tractor-trailer separation, which if not avoided, could result in death or serious injury.
- Tow-away operations which damage or 2. interfere with the proper operation of the fifth wheel.
- 3. The attachment of lifting devices.
- 4. The transport of loads in excess of rated capacity.
- 5. Applications other than those recommended in SAF-HOLLAND® literature available on the Internet at www.safholland.cn.

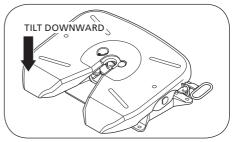
# 6. Coupling Preparation

- Prior to coupling, you MUST inspect the 1. fifth wheel and mounting. Perform and verify the following:
  - Tighten loose fasteners.
  - Replace missing fasteners.
  - Repair/replace missing, cracked or otherwise damaged components.
  - Clean grease grooves if a large amount of debris is present.
  - I ubricate fifth wheel-to-trailer contact surfaces, if needed.
  - Inspect fifth wheel mechanism. Lubricate dry or rusty components.
  - Make sure the fifth wheel is in the appropriate position for weight distribution on the tractor. For proper positioning of the fifth wheel, refer to the SAF-HOLLAND® publication XL-FW10008BM-en-CN available on the Internet at www.safholland.cn.
- 2. Make sure coupling area is flat, level, and clear of persons and obstacles.



- 3. Tilt ramps of fifth wheel downward *(Figure 5)*.
- 4. Make sure lock is open (*Figure 6*). If lock is closed:
  - a. Remove the safety clip from the fifth wheel release handle interface holes (*Figure 7*).
  - b. Slide release handle rearward and pull all the way out *(Figure 8).*
  - c. Hook handle notch on fifth wheel top plate.
  - d. Visually inspect fifth wheel throat to ensure locks are completely open and ready to accept kingpin *(Figure 6)*.
  - **NOTE:** If lock is not completely open check the following:
    - a. Safety clip is removed from release handle.
    - b. Release handle is extended to the "open" position.

#### Figure 5



## Figure 6

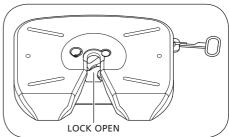
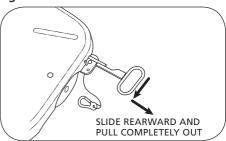


Figure 7







# 7. Coupling Procedures

- 1. Chock trailer wheels.
- Position the tractor so the center of the fifth wheel is aligned with the kingpin (*Figure 9*).
- Traveling in a straight line, slowly back tractor to trailer. STOP the tractor before making contact with the trailer (*Figure 10*).
- 4. Set tractor parking brake. Place in neutral. Exit cab and verify proper fifth wheel to kingpin alignment.
- Adjust trailer height so that fifth wheel will lift trailer. Trailer should contact fifth wheel 100-150 mm behind fifth wheel bracket pin (*Figure 11*).
  - **NOTE:** For proper operation of landing gear, follow the instructions published by the landing gear manufacturer.

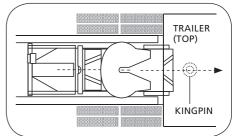
**IMPORTANT:** If trailer is too high the kingpin will not properly connect with the lock jaw.

6. Slowly back into the trailer, engaging kingpin in the fifth wheel.

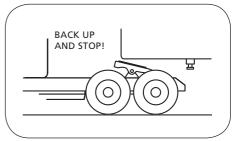
# **WARNING** Failure to couple with the trailer at the proper height could result in improper coupling, allowing tractor and trailer separation, which if not avoided, could result in death or serious injury.

- 7. Connect the air and electrical lines.
- 8. Raise the landing gear legs until the pads are just above the ground.
- 9. Perform a pull test as an INITIAL CHECK by locking the trailer brakes and pulling forward with the tractor to make sure that tractor-trailer separation does not occur *(Figure 12)*.
- 10. Set the tractor parking brake.

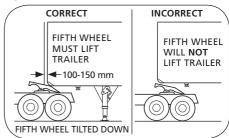
#### Figure 9

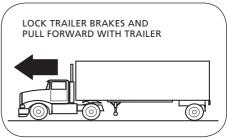


## Figure 10



## Figure 11

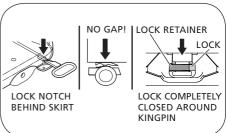






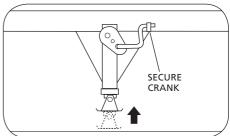
- 11. Exit the cab and visually inspect for the following to ensure that the lock is closed *(Figure 13)*.
  - a. Release handle fully retracted with lock notch behind skirt.
  - b. No gap is permissible between the trailer upper coupler plate and the fifth wheel.
  - c. Lock completely closed around kingpin.
  - d. Lock retainer is engaged behind lock.
- 12. If you DO NOT achieve a proper couple, repeat the coupling procedure.
- Failure to properly couple the tractor and trailer could result in tractor-trailer separation while in use which, if not avoided, could result in death or serious injury.
  - **IMPORTANT:** DO NOT use any fifth wheel that fails to operate properly.
- **WARNING** Failure to repair a malfunctioning fifth wheel before use could result in tractor-trailer separation which, if not avoided, could result in death or serious injury.
- 13. Reinstall safety clip into the fifth wheel release handle interface (*Figure 14*).
- Fully retract the landing gear legs off the ground and secure the crank handle (*Figure 15*).
  - NOTE: For proper operation of landing gear, follow the instructions published by the landing gear manufacturer.
- 15. Remove the wheel chocks and continue with the pre-trip inspection.









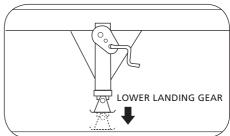




# 8. Uncoupling Procedures

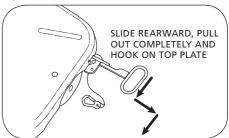
- 1. Position the tractor and trailer, in straight alignment, on firm, level ground clear of obstacles and persons.
- 2. Set the trailer brakes.
- 3. Slowly back the tractor tightly against the trailer to relieve pressure on the fifth wheel locks.
- 4. Set the tractor parking brake.
- 5. Exit the cab and chock the trailer wheels.
- 6. Lower the landing gear until the pads just touch the ground *(Figure 16)*.
  - **NOTE:** For proper operation and ability to transfer trailer weight from the fifth wheel, follow the landing gear manufacturer's published instructions. DO NOT raise trailer off of the fifth wheel.
- 7. Disconnect the air and electrical lines from the trailer and secure to tractor.
- 8. a. Remove the safety clip from the fifth wheel hand interface holes (*Figure 17*).
  - b. Slide the release handle rearward, pull all the way out *(Figure 18)*.
  - c. Hook handle notch on fifth wheel top plate.
- 9. Release the tractor parking brake and slowly pull away from the trailer.













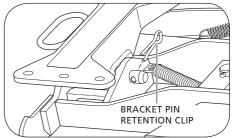
# 9. Fifth Wheel Maintenance

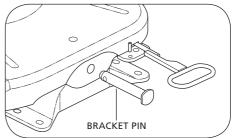
- **IMPORTANT:** All maintenance MUST be performed by a properly trained technician using proper tools and safe procedures.
- **IMPORTANT:** All maintenance MUST be performed while the tractor is uncoupled from the trailer.
- **AWARNING** Failure to properly maintain your fifth wheel could result in tractor-trailer separation which, if not avoided, could result in death or serious injury.
  - **NOTE:** Removal of the fifth wheel top plate is not required for maintenance but may be required when performing repairs.

## 10. Top Plate Removal

- 1. Remove bracket pin retention clips from both sides of fifth wheel top plate *(Figure 19)*.
- 2. Using a pry bar, pull bracket pins out of fifth wheel top plate (*Figure 20*).
- Using a lifting device capable of lifting 500 lbs. (227 kg), remove the top plate from the mounting base. Place top plate on a flat, clean working area.
- **NOTE:** Follow instructions published by lifting device manufacturer for proper operation of lifting device.

#### Figure 19







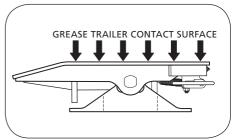
SAF-HOLLAND Group

# 11. Fifth Wheel Lubrication

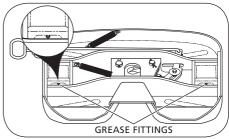
- **IMPORTANT:** Fifth wheel lubrication is necessary to get the maximum service life from your FW20 series fifth wheel. Perform the following procedures at the intervals listed
- Check the fifth wheel-to-trailer contact surfaces weekly or at 4,000 km, whichever is more frequent (Figure 21).
- Inspect the fifth wheel to kingpin contact surfaces, the fifth wheel front lock weekly or at 4,000 km, whichever is more frequent.
- Maintain a film of lubrication approximately 1 to 3 mm thick on all trailer to fifth wheel contact surfaces.
- Clean grease grooves if a large amount of debris is present.
- Lubricate using a water-resistant lithiumbased grease.
- Lubricate the locking mechanism every three (3) months or 48,000 km at a minimum. (Refer to steps 2 and 3 in Section 11.A for lubrication points.)
- Using grease fittings located under the fifth wheel, lubricate the fifth wheel top plate and bracket contact surfaces every three (3) months or 48,000 km at a minimum (Figure 22).
- Thoroughly clean and re-lubricate the locking mechanism every six (6) months or 96,000 km.

**IMPORTANT:** If your fifth wheel operates in snowy or icy winter conditions, lubrication should be performed every spring in addition to routine lubrication (as noted above) to ensure optimum operation.











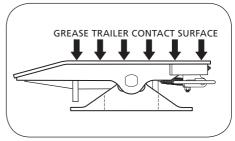
## 11.A Proper Lubrication Method

- Remove old grease and debris from all fifth wheel-to-trailer contact surfaces. Apply new water-resistant lithium-based grease approximately 1 to 3 mm thick to all fifth wheel-to-trailer contact surfaces (*Figure 23*).
- Using water-resistant lithium-based grease approximately 1 to 2 mm thick, lubricate (A) swing lock-to-hook contact areas, and (B) camtrack (*Figure 24*).
- 3. Using a light oil, lubricate (C) hook pin, and (D) release handle pivot (*Figure 24*).
- 4. Using grease fittings located on the underside of the fifth wheel, lubricate the fifth wheel top plate and bracket contact surfaces (*Figure 25*).

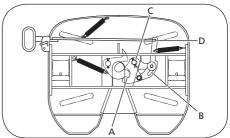
11.B As-Needed Lubrication

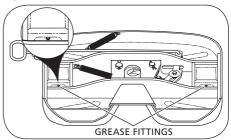
- Maintain lubrication on fifth wheel-to-trailer contact surfaces. Use a water-resistant lithium-based grease. Clean grease grooves if a large amount of debris is present (Figure 23).
- Clean and lubricate locking mechanism if operational difficulties arise during the service life of your fifth wheel (i.e. problems with coupling, uncoupling, or pulling the release handle (*Figure 24*).





## Figure 24







# 12. Fifth Wheel Adjustment

Fifth wheel adjustment should be performed at a minimum of every 96,000 km or if excessive movement between kingpin and fifth wheel is noticed when driving the vehicle.

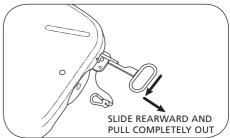
**IMPORTANT:** Excessive movement between the tractor and trailer can effect vehicle handling.

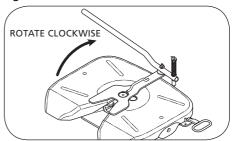
- **AWARNING** Failure to maintain proper fifth wheel adjustment could result in loss of vehicle control which, if not avoided, could result in death or serious injury.
- NOTE: To obtain proper adjustment SAF-HOLLAND® recommends use of HOLLAND® lock tester Part No. TF-TLN-1500, available from your local HOLLAND® distributor.
- If fifth wheel is locked, remove the safety clip (*Figure 26*), slide release handle rearward and pull all the way out (*Figure 27*).
- 2. Set lock tester on fifth wheel top plate.
- To lock fifth wheel, rotate handle on lock tester clockwise until the locks close around the kingpin (*Figure 28*).







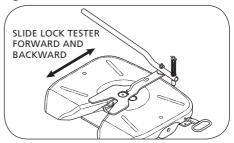






- 4. Slide the lock tester forward and backward in the closed lock to check for play between lock and kingpin. Ensure that the tool remains flat with full contact on the fifth wheel top plate. Use pin gage to measure free play. If free play exceeds 0.080". adjust lock mechanism (*Figure 29*).
- 5. To adjust lock, unscrew the low head socket cap screw until the head clears the adjusting pin and rotate adjusting pin counter-clockwise until the next notch lines up with the low head socket cap screw. Re-tighten low head socket cap screw. Adjust only one notch at a time (*Figure 30*).
- **NOTE:** If the screw cannot be removed, remove the cotter pin from the bottom of the adjustment pin, then lift and rotate the pin to the next notch. Re-install the cotter pin and spread the pin legs beyond 20°.
- Verify the proper adjustment by locking and unlocking fifth wheel several times with lock tester. Check that fifth wheel is properly locked (*Figure 31*).
- Rotate lock tester from side-to-side to ensure that lock is not overtightened. Lock should not grip kingpin and the tool should rotate freely (*Figure 32*).
- Disengage lock tester J-hook from front skirt of casting and re-check for free play in lock by sliding lock tester forward and backward using pin gage to measure free play (*Figure 32*). Free play should be 0.040" minimum. If free play still exceeds 0.080", repeat procedure and adjust one more notch.

#### Figure 29



#### Figure 30

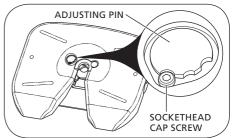
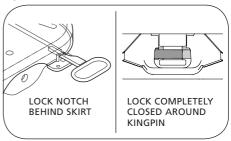
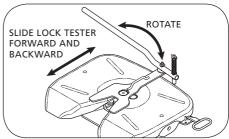


Figure 31





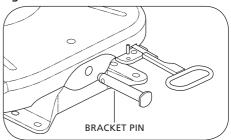


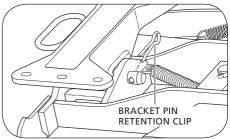
- To unlock, push down on lock tester, and rotate "J" hook under the fifth wheel, then pull handle back.
  - **NOTE:** If there is still excessive free play in the lock with the adjusting pin on the last (third) notch, then the fifth wheel should be rebuilt using the appropriate SAF-HOLLAND<sup>®</sup> service kit.
  - **IMPORTANT:** Before using your fifth wheel, you MUST verify that it is operating properly.
- AWARNING Failure to verify that fifth wheel is operating properly could result in tractor trailer separation which, if not avoided, could result in serious injury or death.

# 13. Top Plate Installation

- 1. Using a lifting device capable of lifting 500 lbs. (227 kg), install the fifth wheel top plate onto its mounting base.
- Install bracket pins through fifth wheel casting and mounting base and secure by installing the bracket pin retention clips (*Figure 33 and 34*).









# 14. Troubleshooting

## Difficult to Couple to Trailer:

$\checkmark$	Possible Cause	Remedy
	Attempting to couple too fast.	Couple in accordance with the procedure in Section 7.
	The trailer may be too high; the kingpin is not entering the locks properly.	Lower the trailer in accordance with manufacturer's instructions.
	Locks are closed.	Remove the safety clip from the fifth wheel release handle interface holes. Pull the release handle out as far as possible. Lock will swing open.
	Accumulated rust or grime interfering with the lock operation.	Thoroughly clean the fifth wheel and re-lubricate in accordance with the procedure in Section 11.
	The locks are adjusted too tightly.	Check lock adjustment in accordance with the procedure in Section 12.
	The locks may be damaged.	The fifth wheel MUST be rebuilt using the appropriate service kit.
	Damaged, bent release handle.	Replace release handle using the appropriate service kit.
	Bent kingpin, damaged upper coupler,or improper use of "lube plate" may be interfering with lock movement.	Check the kingpin and upper coupler plate as detailed in HOLLAND® Service Bulletin XL-SB020. Repair/replace as required. Remove any improperly installed or improperly specified lube plates. Refer to HOLLAND® Service Bulletin XL-SB004-01 for lube plate warnings.

## Difficult to Uncouple from Trailer:

$\checkmark$	Possible Cause	Remedy
	The tractor may be putting pressure against locks.	Lock the trailer brakes and back the tractor tightly against the kingpin to relieve the pressure on the fifth wheel lock, set the brakes, then pull the release handle.
	The secondary lock is not released.	Remove the safety clip from the fifth wheel release handle interface holes.
	The release handle is not pulled out completely and hooked on the notch in the top plate.	Slide the release handle forward, then pull out the handle, slide it forward, and hook it on the notch of the top plate.
	Accumulated rust or grime interfering with the lock operation.	Thoroughly clean the fifth wheel and re-lubricate in accordance with the procedure in Section 11.
	The lock is adjusted too tightly.	Check lock adjustment in accordance with the procedure in Section 12.
	The release handle will not stay out or must be held out when unlocking.	The fifth wheel MUST be rebuilt using the appropriate service kit.
	Missing or damaged release system parts.	The fifth wheel MUST be rebuilt using the appropriate service kit.
	Top plate bent/damaged at throat area, restricting movement.	The entire fifth wheel top plate MUST be replaced.
	Bent kingpin, damaged upper coupler,or improper use of "lube plate" may be interfering with lock movement.	Check the kingpin and upper coupler plate as detailed in HOLLAND <sup>®</sup> Service Bulletin XL-SB020. Repair/replace as required. Remove any improperly installed or improperly specified lube plates. Refer to HOLLAND <sup>®</sup> Service Bulletin XL-SB004-01 for lube plate warnings.



#### **Excessive Movement between Fifth Wheel and Kingpin:**

$\checkmark$	Possible Cause	Remedy
	Fifth wheel lock requires adjustment.	Follow the procedures contained in Section 12.
	Fifth wheel cannot be adjusted further.	The fifth wheel MUST be rebuilt using the appropriate service kit.
	Kingpin is loose.	Repair trailer.
	Kingpin is worn.	Check kingpin for acceptable wear with HOLLAND <sup>®</sup> TF-0110. Replace kingpin, if necessary.

#### Hard Steering or Binding:

$\checkmark$	Possible Cause	Remedy
	Lack of lubrication on fifth wheel top surface.	Lubricate top of fifth wheel plate using a high pressure, lithium-based grease. Follow recommended lubrication schedule as described in Section 11.
	Warped trailer upper coupler plate.	Check upper coupler plate for flatness and replace, if necessary. Refer to HOLLAND® Service Bulletin XL-SB020.

## 15. Rebuild and Replacement Kits

REBUILD AND REPLACEMENT KITS	PART NUMBER
Rebuild Kit-Standard Right Hand Release	RK-200-A







From fifth wheel rebuild kits to suspension bushing repair kits, SAF-HOLLAND Original Parts are the same quality components used in the original component assembly.

SAF-HOLLAND Original Parts are tested and designed to provide maximum performance and durability. Non SAF-HOLLAND parts will only limit the performance potential and could possibly void SAF-HOLLAND's warranty. Always be sure to specify SAF-HOLLAND Original Parts when servicing SAF-HOLLAND products.

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