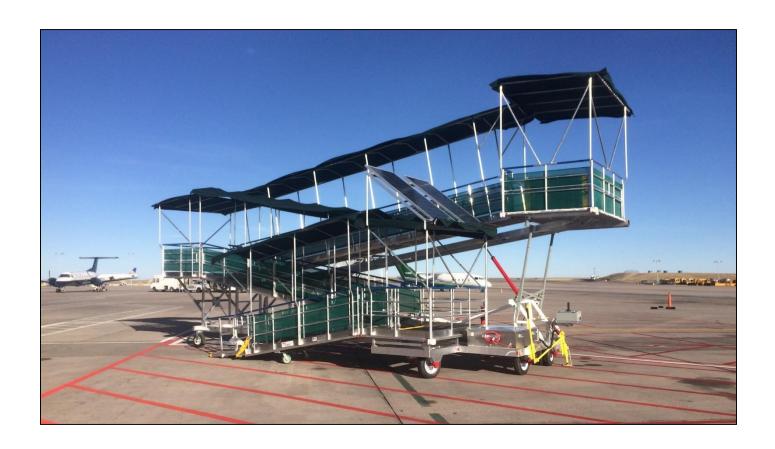


# SGR Series Ramp Training, Operations & Parts Manual

Maintenance Schedule



Keith Consolidated Industries www.kcigse.com

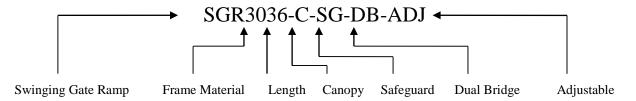
541-830-8678 1718 Antelope Rd. White City, OR 97502



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## • Understanding the Model Number •



KCI manufactured ramps meet or exceed the requirements set forth in FAA AC 150/5220-21C, Aircraft Boarding Equipment.



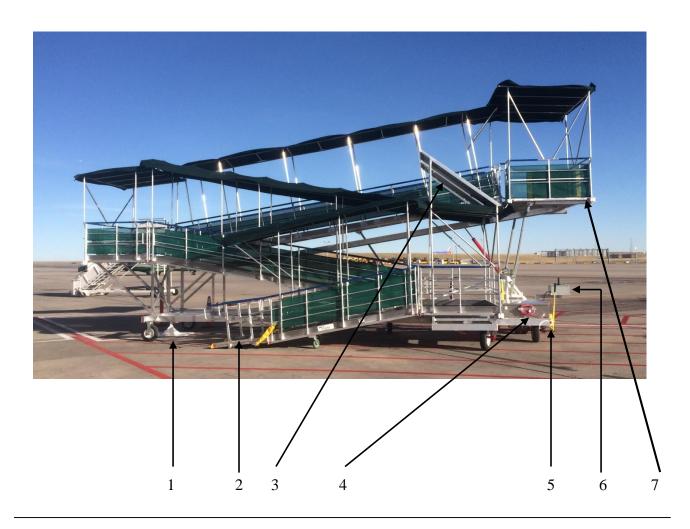
### •Overview•



The SGR Passenger Boarding Ramp is designed to work much like a passenger boarding bridge. The SGR is mounted to a pivot plate on the apron, when deployed; the SGR simply pivots into position at the aircraft. The SGR can be configured for drive-in/pushback operations as well as wing swing ops. The SGR is also available as a fixed height unit or adjustable for gates that accommodate multiple type aircraft. One of the unique features now available is the option for single or dual upper bridges on the level deck. The dual bridge option allows for the SGR to interface with two types of aircraft without requiring further adjustments.



### • Understanding the SGR When Equipped with a Level Deck •



- 1. Pivot Plate
- 2. Lower Bridge
- 3. Solar Panels
- 7. Level Deck

- 4. Battery Storage
- 5. Stabilizer Foot
- 6. Drive Station

The SGR works much the way a passenger boarding bridge does. Anchored to a pivot plate on the ground at the lower end of the ramp, the SGR will simply pivot into position to allow boarding and deplaning of passengers.



### • Understanding the SGR When Equipped with 1-2 Upper Bridges•



- 1. Stabilizer Foot
- 2. Brake release handle
- 3. Locator rod

- 4. Upper bridge
- 5. Pivot plate
- 6. Lower bridge

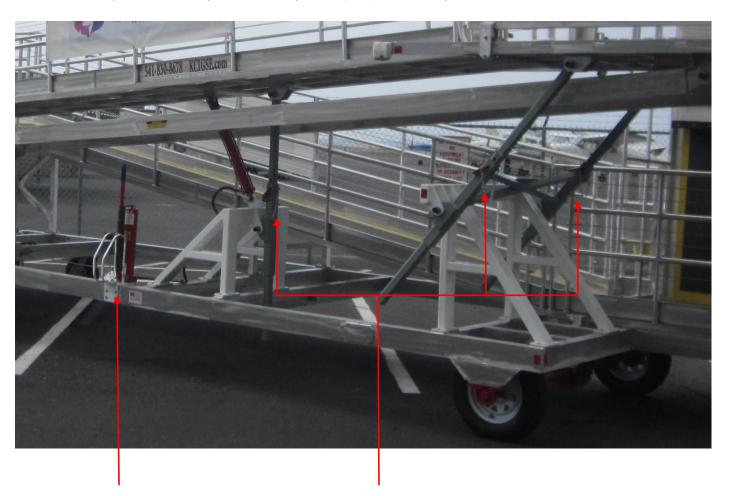
The SGR works much the way a passenger boarding bridge does. Anchored to a pivot plate on the ground at the lower end of the ramp, the SGR will simply pivot into position to allow boarding and deplaning of passengers.



#### • Setting the Ramp Height (Adjustable Models Only) •

Prior to aircraft arrival, adjust the upper ramp so the level deck platform is 6-8" below the aircraft door sill height. If the elevation is unknown or not marked on the unit, KCI recommends the following;

- If a set of stairs has been used check the height of the stairs and adjust the ramp to that height. Once the ramp is in place adjust as necessary.
- If stairs are not available, set the ramp at the following heights until final adjustments are made. MD-80 series 85", ERJ 175- 97", 737's 103", A-319,320,321 127", 757 155".



Hydraulic Pump

**Elevation Locks** 



Do not stand or go under the ramp when adjusting the height. Never adjust the ramp height with someone on it



#### • Adjusting the Ramp Height •

Raising the Ramp

1. To raise the ramp, move the pump valve counter clockwise to the closed position as shown in the image to the right.



2. Pull the pin to engage the elevation locks.

- 3. Operate the hand pump and the ramp will begin to raise in height. As the ramp raises, the elevation locks will automatically "click" into the corresponding cogs in the sliders.
- 4. Once the desired height has been achieved and all 3 elevation locks have clicked into the slider cogs, move the pump valve to the open position to allow the ramp to slightly lower and settle onto the elevation pins.







Do not adjust the ramp height with someone on it.

Do not stand or go under the ramp when adjusting the height.



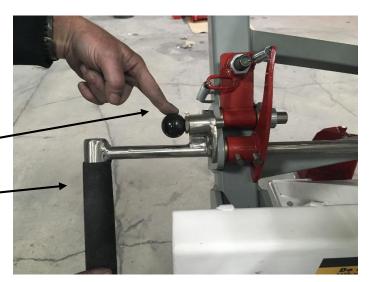
#### • Adjusting the Ramp Height •

To lower the ramp

1. Grasp the foam covered handle of the elevation lock and rotate in a clockwise direction. This will allow for the lock pins to engage.

Lock Pin

**Elevation Lock Handle** 



- 2. With the pump valve in the closed position, slightly operate the pump and begin to raise the ramp. This will allow for the elevation locks to fully disengage. The image to the right shows the elevation lock fully disengaged.
- 3. Move the pump valve to the open position and the ramp will begin to lower.



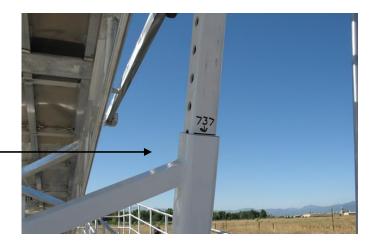


- 1. As the ramp raises, the elevation lock pins will "click" into corresponding cogs in the sliders. When the desired aircraft height has been achieved, release the raise switch.
- 2. Move the pump valve to the open position to release the hydraulic pressure and allow the ramp to "settle" onto the elevation lock pins.

#### • Lowering the Ramp •

- 1. Rotate the latch arms until the locking pins engage.
- 2. With the pump valve in the closed position, raise the ramp slightly to allow the elevation lock pins to disengage.
- 3. Move the pump valve to the open position, the ramp will begin to lower.

Image showing aircraft markings on the sliders





Do not stand or go under the ramp when adjusting the height. Never adjust the ramp height with someone on it



### • Deploying the SGR When Equipped with a Level Deck •

#### For the ERJ 170/175 and 737

1. Upon aircraft arrival, wheels chalked and engine shutdown, grasp the brake release handle to release the brakes and push the SGR until the cushioning bumper is approximately 2-4" away from the aircraft

Once the SGR has been pushed into position, it is necessary to set the stabilizer feet.

2. Grasp the stabilizer handle and pull towards you until the stabilizer foot is fully deployed.



3. Grasp the safety latch of the lower bridge and lift up on it. Pull the lower bridge towards you and gently lower to the ground.



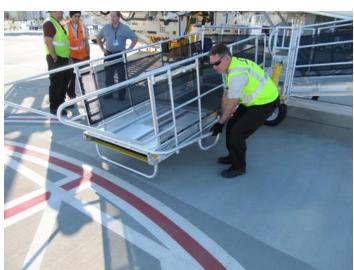


### • Deploying the SGR When Equipped with a Level Deck •

4. Continue to lower the bridge until it is in contact with the ground.



5. Grasp the handle of the flip down section of the bridge.



6. Articulate the flip down section of the bridge 180 degrees.



Do not allow the lower bridge or flip down section to drop of their own weight, damage to bridge can occur!





#### • Deploying the SGR When Equipped with a Level Deck •

Once the ramp has been positioned with the stabilizer foot and the lower bridge deployed, proceed up the ramp to the level deck.

- 7. In preparation for opening the cabin door, ensure the telescopic gate has been retracted, proceed with opening the cabin door.
- 8. Once the cabin door has been fully opened, pivot the gate and extend towards the aircraft fuselage. Using the T-Handle pin, lock the gate in its desired position.







9. Deploy the transition plate as shown in the image to the left.



- Operations •
- Deploying the SGR When Equipped with a Level Deck •

For the CRJ 200/700/900 and ERJ 135/145

Use of the MBA is required when servicing the CRJ 200/700/900 and ERJ 135/145

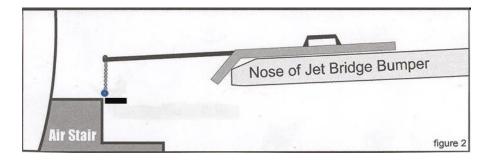


It is required the ramp operators read and understand the MBA Operations Manual Prior to using the MBA with the SGR Passenger Ramp.

- 1. Read and understand the MBA Operations Manual prior to deploying the MBA.
- 2. Calibrate the MBA Positioning guide as described on page 14 of the MBA Operations Manual.



3. Once the MBA positioning guide has been calibrated, place the positioning guide on the level deck as shown in the image below.





#### • Deploying the SGR When Equipped with a Level Deck •

4. Upon aircraft arrival, wheels chalked and engine shutdown, grasp the brake release handle to release the brakes and push the SGR until the positioning guide height marker contacts the top step of the air stair door.

#### • Preparing the MBA for Use •

- 1. Place the MBA on the floor on its main wheels.
- 2. Release the Velcro securing strap on the handrails.
- 3. Lift the folded handrails until they snap into the vertical position.

#### • Positioning the MBA •

- 1. Push the MBA until the wheel drops over the edge of the cushioning bumper.
- 2. Lower the nose of the MBA onto the aircraft's floor (not the top step).
- 3. Move the MBA forward until the front of the platform is a minimum of THREE inches into the doorway.
- 4. Check that the rear end of the MBA's platform overlaps the FLOOR (not the bumper) of the ramp level deck by a minimum of 3 inches.

Figure 3 – Side View of Set-up, Air Stair with folding handrails.



Correct Set-up

Incorrect Set-up

Check the stability of the MBA. If there is any side-to-side instability, use the cross-slope adjusting mechanism to stabilize the unit.

- Step on the cross-slope adjusting flap (located on the jet bridge side of the unit) to set its position (the adjusting mechanism will hold it in place)
- The unit should feel stable and not rock side to side when the flap is adjusted correctly.
- If the cross-slope adjusting flap has been set too low, release the adjusting mechanism by stepping on the metal tab to the right of the Flap



#### • Deploying the SGR When Equipped with a Level Deck •

- 5. Attach the curtain (snap hooks) to both inside walls of the jet bridge or Ramp (eyebolts). (See Figure 4) The curtain is very important because:
  - The curtain guides passengers onto the Mobile Bridge Adapter.
  - The curtain acts as a restraining device by preventing the MBA from moving too far forward.
  - Curtains should have enough slack to allow the MBA to pivot freely as the aircraft's height changes.

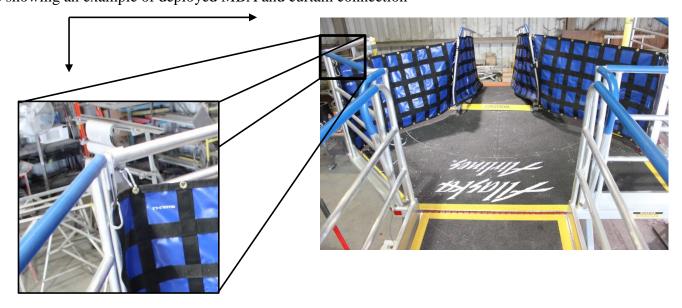
Top View

Allowed 45°
Webbing Position Range

Aircraft Door

Figure 4 – Top View of MBA Ready for Use.

Image showing an example of deployed MBA and curtain connection



The SGR ramp with MBA adapter is now ready for passenger traffic.



## • Storing the Adapter •

1. When the MBA is not required for passenger boarding, it can be easily folded and stored behind the locking gate on the turndeck.



2. When the MBA is stored, extend the telescopic gate and secure with the provided snap clip as shown.





#### • Deploying the SGR When Equipped with 1-2 Upper Bridges •

For Adjustable models, follow the steps on pages 5-8, Adjusting the Height.

#### • Locator Rod •

Prior to aircraft arrival, Remove the locking pin for the locator rod and gently lower.

If the SGR being used is adjustable in height, the locator rod will be marked for multiple type aircraft.

For a fixed height SGR, a KCI representative will have preset the locator rod to the proper position.



The locator rod can be adjusted by pulling down on the positioning lock and extending the rod out until the required setting has been achieved.



Image showing locator rod settings —





### • Deploying the SGR •

Upon aircraft arrival, wheels chalked and engine shutdown, grasp the brake release handle to release the brakes and push the SGR until the locator rod makes contact with the aircraft.



Once the SGR has been pushed into position, it is necessary to set the stabilizer feet.

First, set the stabilizer that is furthest from you

Grasp the stabilizer handle and pull down until the stabilizer foot is fully deployed.



Next set the stabilizer foot that is closest to you, again grasp the handle and pull down until the stabilizer foot is fully deployed.





#### • Lower Bridge •

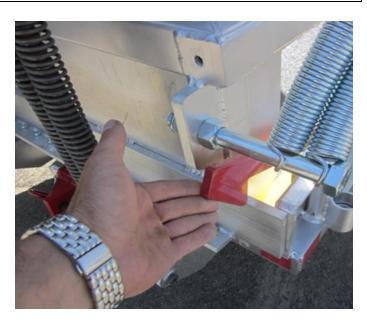


Do not allow the lower bridge or flip down section to drop of their own weight, damage to bridge can occur!



Never stand directly under bridge when lowering, personal injury could occur. The lower bridge weighs approximately 200 lbs.

1. While lifting the latch with one hand, start to lower the bridge with the other.



2. Continue to lower the bridge until it is in contact with the ground.



3. Grasp the handle of the flip down section of the bridge





4. Articulate the flip down section of the bridge 180 degrees.



5. Grasp the folding handrail, lift slightly to release from retainer cup, unfold and lower into opposite retainer cup. Repeat this step for opposite handrail.

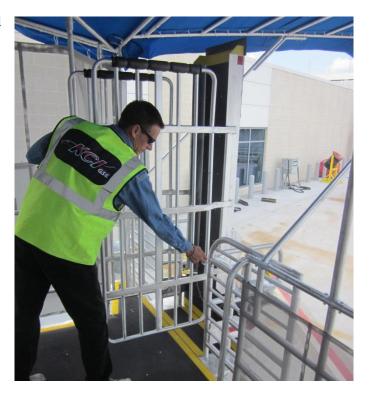




### • Deploying the Upper Bridge into the Aircraft •

1. Once the lower bridge has been deployed, proceed up the ramp and approach the upper bridge.

2. Grasp the "O" ring located on the right hand side of the Upper bridge



3. Pull the "O" ring so as to lift the safety latch and begin to lower the upper bridge





With the upper bridge slightly deployed, it is possible to slide the upper bridge side to side and pivot to make minor adjustments for proper alignment with the cabin door







Images above showing deployed upper bridge into the aircraft cabin.

#### • Cautions When Boarding and Deplaning Passengers •



Water, ice, snow or any other natural or foreign substance should never be allowed to accumulate on the ramp walking surface.



Load capacities are as follows:

Lower Bridge: 1000 lbs.

Main Ramps: 3000 lbs. each Turn Decks: 1000 lbs. each Level Deck: 1000 lbs.



No passengers should ever be allowed on the ramp until it has been properly positioned at the aircraft with brakes engaged and wheel chocks in place.



#### • Assisting Passengers with Mobility Impairments •



- 1. When assisting passengers with mobility impairments, great care and caution should be used.
- 2. When assisting passengers in an aisle chair, the operator must slowly ascend and descend the ramp.
- 3. Passengers requiring an aisle chair should be transferred at ground level and must be securely fastened into the chair using all safety restraints provided.
- 4. In the absence of airline or airport S.O.P.'s, passengers requiring an aisle chair are to be boarded and deplaned facing the cabin door.
- 5. Passengers requiring an aisle chair or assistance must never be left unattended on the SGR Boarding Ramp.



### • Removing the Ramp from the Aircraft •

Upon completion of boarding/deplaning, prepare the ramp to be pulled away from the aircraft.

- 1. Remove the transition plate/MBA and stow on the level deck/turn deck of the ramp *OR* pull the upper bridge up until the safety latch engages.
- 2. Proceed down the ramp and raise the lower bridge until the safety latch has engaged.
- 3. Raise the stabilizer feet.
- 4. Grasp the brake release handle and push the SGR ramp away from the aircraft.
- 5. Once clear of the aircraft release the brake handle and the SGR will stop. Set the stabilizer foot.



## • Optional Light Kit (If Equipped) •

### • Light Kit (If Equipped) •

If selected as an option, the SGR Ramp can be equipped with LED Lighting.

Located under the level deck is the battery/drive control enclosure. On the front panel of the enclosure is the ON/OFF switch for controlling the lights.









#### • Warnings and Restrictions Summary •



- 1. It is the responsibility of the operating staff to ensure that the aircraft is not damaged when using the KCI Passenger Ramp.
- 2. To ensure the aircraft is not damaged, the ramp should never come in contact with the aircraft.
- 3. Only trained and authorized personnel should raise, lower, or adjust the ramp, operate the hydraulic mechanism, or adjust the ramps height.
- 4. Disabled passengers in an aisle or wheel chair must never be left unattended on the ramp.
- 5. Two attendants are required to assist disabled passengers who are overweight or of large stature.
- 6. Under no circumstances should the ramp be raised, lowered, moved, or towed with any person on it.
- 7. The weight of the ramp, when in use, must always rest on the safety pins and not be dependent upon the hydraulic unit to support it.
- 8. Water, ice, snow or any other natural or foreign substance should not be allowed to accumulate on the ramps surface.
- 9. The ramp should be inspected before each use to ensure a clean and unobstructed pathway.
- 10. The lower bridge should always up and locked when not in use.
- 11. The ramp has a maximum capacity of 3000 lbs. for each main ramp, Turn decks 1000 lbs., and the lower bridge 1000 lbs.
- 12. The adhesive non-skid surface affixed to the ramp will lose its traction enhancing properties over time, depending on the extent of usage and climactic conditions, which exist at each airport. Replacing non-skid surface is the responsibility of the ramp owner; material can be obtained directly from KCI.
- 13. Do not let the lower bridge drop of its own weight.
- 14. The canvas canopy should be inspected for rips or tears. Replacing the canopy is the responsibility of the ramp owner. The canopy material can be obtained directly from KCI.
- 15. Qualified airport ground crew personnel or airline personnel should always be present when the ramp is in use.





#### • Warnings and Restrictions Summary •



- 16. No passengers are allowed on or near the ramp except when it has been properly set up at the aircraft and wheel chocks and stabilizer feet are in place.
- 17. The ramp and bridges have been designed solely for the usual and customary operation of loading and deplaning of qualifying aircraft. Any other use is strictly forbidden, and voids any and all warranties relating to the passenger ramp.
- 18. Where winds are forecasted over 70 MPH it is strongly recommended that the canopy be removed. Should this not be feasible, then some type of wind protection should be taken, at a minimum, position the lower end of the ramp into the wind.
- 19. Only properly trained and authorized personnel should ever operate or adjust the height of the SGR ramp.
- 20. Never adjust the height of the SGR ramp with anyone on it.



## •Preventive Maintenance Checklist•

The following is a general maintenance checklist which covers the major components of your SGR Ramp. It is recommended that the following be checked regularly as scheduled to ensure proper function and safety of your SGR Series Ramp.

COMPONENT	SUGGESTED ACTION -	SCHEDULE		
COMPONENT		Monthly	Quarterly	Bi-Annually
WHEELS	Grease swivel wheels and pillow block bearings with NLGI 2 Grease		Quarterly	
STRUCTURAL	General Check: Loose bolts, etc. tightened. Cracks, broken areas.	Monthly		
TIRES	Inspect for serviceability.	Monthly		
WALKING SURFACE	General check for adequate traction, No loose rivets in Safeguard panels.	Monthly		
HYDRAULICS	Check fluid level, if necessary add Lubriplate® HO-1 Hydraulic Oil check hydraulic hose and fittings for leaks.	Monthly		
SCISSOR LIFT	Lubricate® with NLGI 2 Grease		Quarterly	
LEVEL DECK ADJUSTABLE GATES	Coat with Graphite Dry Film Lubricant to ensure proper function.	Monthly		

#### • Recommended Lubricants •

Axle Pillow Block Bearings	Lubriplate® 1552 NLGI 2 Grease
Scissor Lift	Lubriplate® 1552 NLGI 2 Grease
Level Deck Telescopic Gates	Graphite Dry Film Lubricant
Hydraulic Pump	Lubriplate® HO-1 Hydraulic Oil



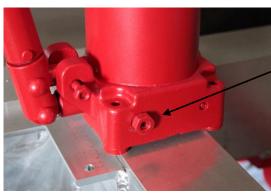
### • Servicing the Hydraulic Hand Pump •

• When servicing the hydraulic pump, the ramp must be fully lowered. Remove the filler plug from the top of the pump and add fluid as needed. The reservoir is considered full when the fluid is within ½" of the top of the pump.



Filler Plug

Hydraulic pumps have a pressure regulator that can be adjusted if need be.



- 1. Using a crescent wrench, loosen the outer regulator nut.
- 2. While keeping the crescent wrench on the outer regulator nut, use a 5/32" allen wrench to adjust the inner regulator screw. Retighten the outer regulator nut.



- Preventative Maintenance •
- Swivel Wheel and Axle Lubrication Points •
- Lubrication Points •





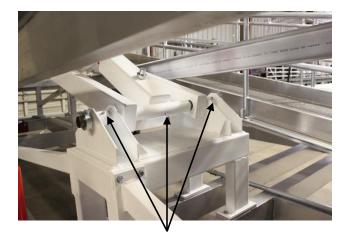
Wheels and bearings should be greased with multi-purpose grease such as Lubriplate® 1552 NLGI 2 grease.



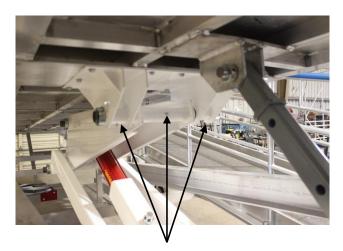
### • Scissor Lift Lubrication Points •

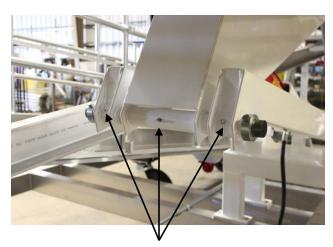
### Scissor lift lubrication should be performed monthly with Lubriplate® 1552 NLGI 2 Grease

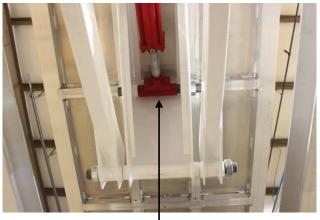




Scissor lift



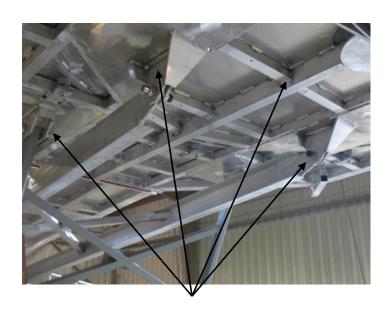


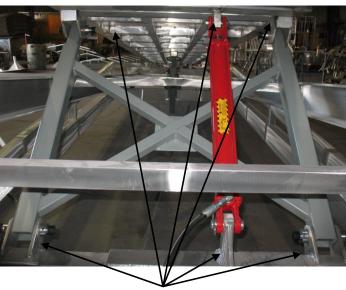


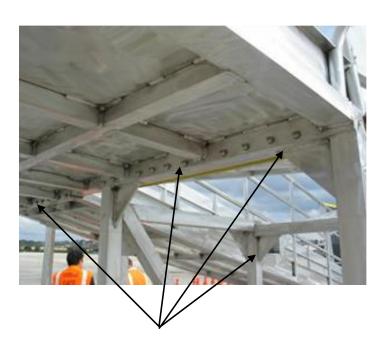


#### • Structural Check Points •

Check all areas indicated by arrows, these areas should be free from cracks and all hardware should be secure.







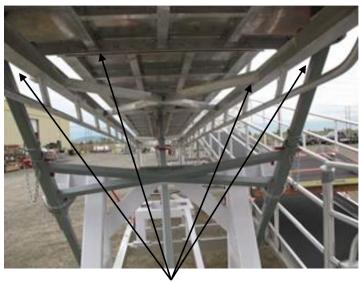


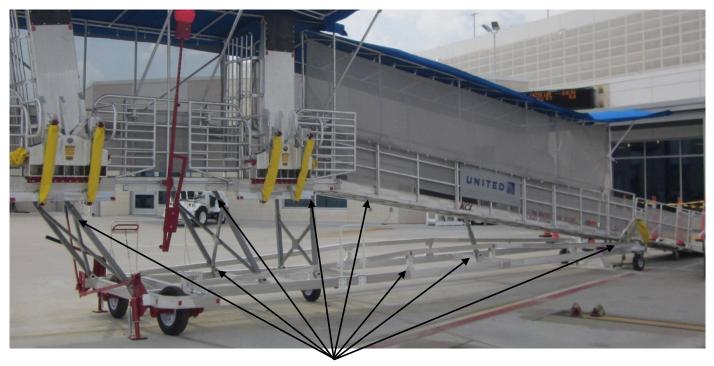


#### • Structural Check Points •

Check all areas indicated by arrows, these areas should be free from cracks and all hardware should be secure.









- Preventative Maintenance •
- Canopy Check •



Canopy cover should be tight and free from cuts or tears



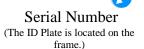
## •How to Order Replacement Parts•

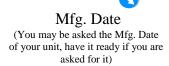
# Please have model number and serial number available when ordering replacement parts

When ordering replacement parts:

- a. Contact the KCI parts dept. at (541) 830-4877 or email msankey@kci.nu
- b. Give the Model Number, Serial Number, and Mfg. Date) to the parts representative.
- c. If possible, give the part number and a description from the parts list. Or describe the needed part(s) to the best of your ability.
- d. If you are in a breakdown situation, please tell us, we will try to get your unit operational as soon as possible.

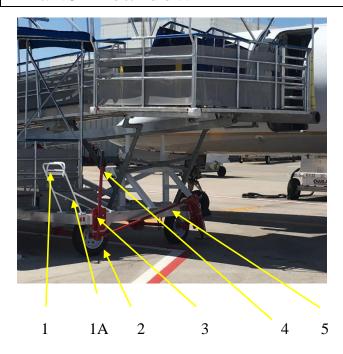


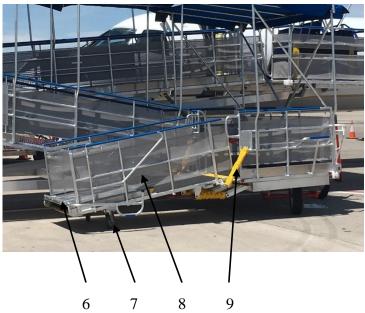






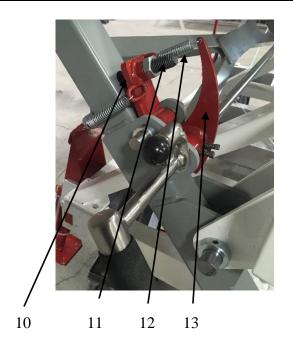






Item	Description	Part Number
1	Brake Handle	SGR-BH
1A	Brake Push Station	SGR-BPS
2	22" Foam Filled Tire	P00096
3	Manual Stabilizer Mounting Plate	SGR-SH53
4	Manual Stabilizer Handle	SGR-HB0911
5	Manual Stabilizer, Linkage Arm	SGR-SC67 or SGR-SC91
6	Flip Bridge	P00179
7	Lower Bridge Swivel Wheels	SGR-LB
8	Lower Bridge	P00179
9	Lower Bridge Side Springs	SGR-LB

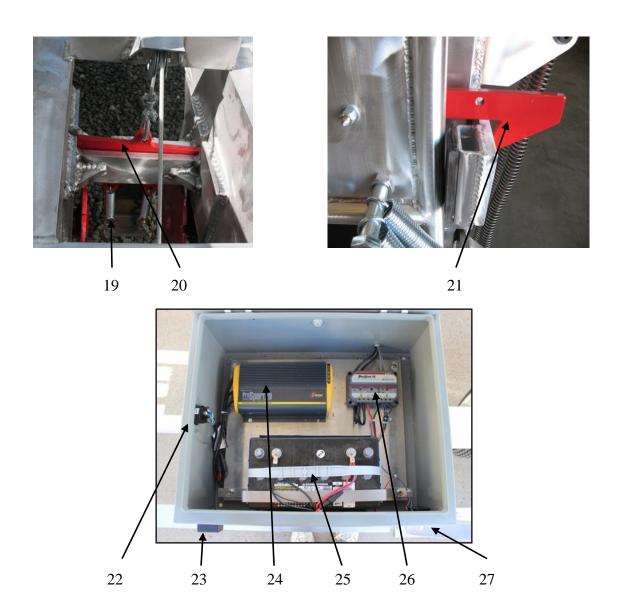






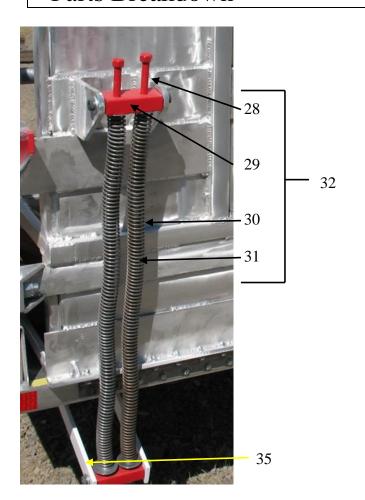
Item	Description	Part Number
10	Locking Plate	K01029
11	Elevation Locking Pin	P00418
12	Spring, Elevation Lock	P00023
13	Disengagement Arm	K01033
14	Telescopic Gate, Right Hand Side	K00668-R
15	Yellow Impact Foam	P00115
16	Telescopic Gate, Left Hand Side	K00668
17	Pump Guard	K00315
18	Hydraulic Pump	P00257

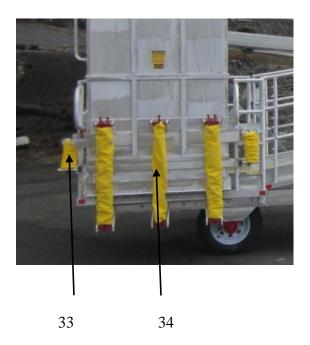




Item	Description	Part Number
19	Brake Springs	P00045
20	Brake Plate	WJ-S375-41
21	Lower Bridge Safety Latch	WJ-S375-6
22	Power Inlet	P00333
23	Battery Charge Indicator	P00156
24	Battery Charger	P00312
25	Battery	P00277
26	Solar Charger	P00338
27	Timer Switch	P00362





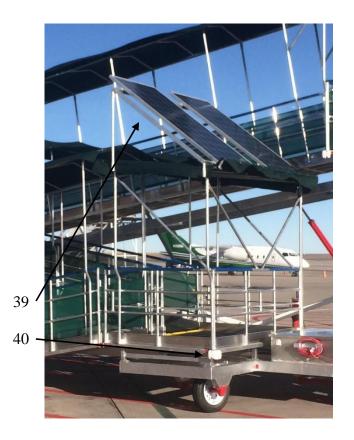


Item	Description	Part Number
28	Spring Rod	K00357
29	Spring Block	K00356
30	Outer Spring	P00123
31	Inner Spring	P00124
32	Complete Spring Rod Assembly	B-SK2
33	Side Spring Sock	B-SS22
34	Spring Rod Sock	B-SS36
35	Spring Block Frame Mount	B-LSH2



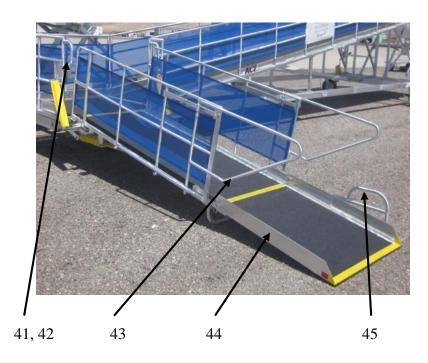






Item	Description	Part Number
36	16" Castor Wheel	P00031A
37	16" Castor Rig	P00030A
38	16" Castor Assembly	P00030
39	Solar Panel	P00325
40	White Corner Bumper	P00025

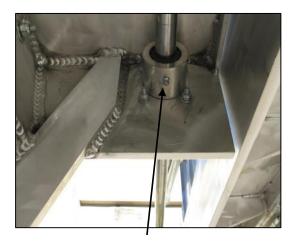




Item	Description	Part Number
41	Handrail Loop, Left Side	B-LL-BOL1409-L
42	Handrail Loop, Right Side	B-LL-BOL1409-R
43	Lower Bridge Folding Handrail	B-LBHR-G4636
44	Flip Bridge	K00485
45	Flip Bridge Handle	K00485A
46	Flip Bridge Mounting Hardware	B-FB-BK38X2







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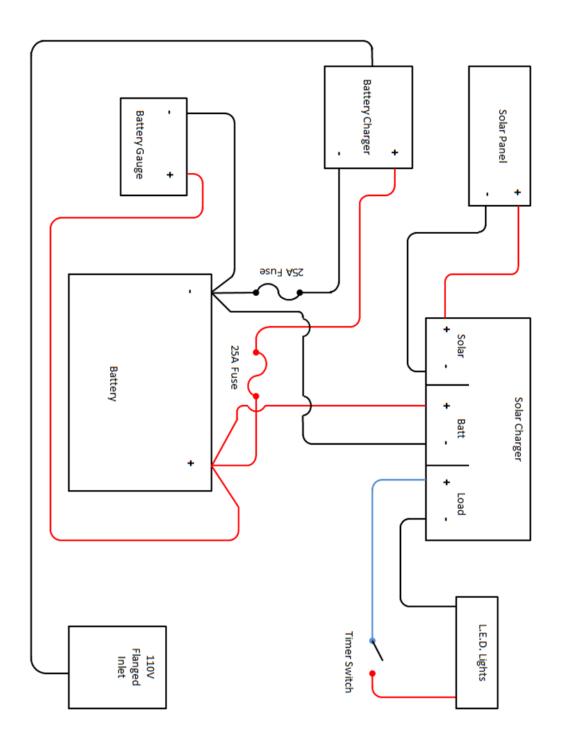


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Item	Description	Part Number
47	Upper Bridge	SGR-UB
48	Upper Bridge Spring Block	SGR-SB2X2
49	Upper Bridge Spring Rod Assembly	SGR-SK1
49A	Upper Bridge Spring Rod	SGR-SR36
49B	Outer Spring	P00123
49C	Inner Spring	P00124
50	Locator Rod Buoy	P00107
51	Locator Rod	SGR-LR53
52	Locator Rod Counterweight	SGR-CW0611
53	Locator Rod Holding Tube	SGR-LRM01
54	Upper Bridge Bushing	P00113
55	Locator Rod Lock Pin	P00040



# • Electrical Schematic •





### • Warranty •

This warranty is in lieu of all other warranties, either expressed or implied.

#### What is Covered:

This warranty covers equipment manufactured by KCI, Inc. from any defects in materials, workmanship and/or installations performed.

#### **Period of Coverage:**

This warranty lasts for a period of two years, electrical component coverage is for one year from the date the product ships, or until the original ownership of the ramp is transferred to another party, whichever comes first. Any repairs or modifications without the express written consent of KCI, Inc. will be grounds to immediately void all or part of this warranty.

#### What is Not Covered:

This warranty does not cover the following:

- 1. Accidental damage.
- 2. Misuse or abuse.
- 3. Damage caused by adverse weather, disasters, or other forces of nature.
- 4. Worn out adhesive skid walk.
- 5. Worn out tires/wheels.
- 6. Worn out/faded canvas canopies.
- 7. Any other wear or damage caused by the ramp's general use.
- 8. Any consequential or incidental damages to include:
  - a. Any loss of profit.
  - b. Loss by reason of airport or flight line shutdown.
  - c. Non-operation or increased expense of operation.
  - d. Loss of passengers or business.

#### What KCI Will Do:

Repair or replace any original part, component or piece of equipment that is found to have defects from time of shipment through the end of the period of coverage.

#### **How to Make a Service Claim:**

Provide a claim in writing within the period of coverage to the address listed below or email to <a href="msankey@kci.nu">msankey@kci.nu</a>. We will then determine if the problem is a defect with the product. Once the nature of the problem is ascertained, we will notify the buyer of our planned resolution. This may include an on-site visit by KCI, Inc. for repairs, or that the buyer ships the defective part or component to us for inspection and replacement at KCI's expense.

KCI GSE Inc. 1718 Antelope Road White City, Oregon 97503