

Operation and Maintenance Manual

For

Heavy Duty Hydraulic Skate and Track Loading System.



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1.0 Equipment Description

Hydraulic skate and track loading system comprising of:

		Joloda Stock Code
1 off	Hydraulic master kit.	SK-HYDHD60
1 off	Hydraulic extension kit 1m.	SK-HYDEXTHD40
4 off	Hydraulic extension kit 1.5m.	SK-HYDEXTHD60
8 off	Portable track in pairs.	SK-HYDPORT3HD

2.0 Parts List

Hydraulic Master Kit (SK-HYDHD60)

Item	Description	Part No.
1	HYDRAULIC PUMP	SK-HYD-HP
2	OPERATION HANDLE	SK-OP916
3	60" HYDRAULIC MASTER SKATE FRAME	SK-HYD-A01-60
4	BOGIE ASSEMBLY FOR 60" MASTER	SK-HYD-A02-60
5	BOGIE SIDE PLATE ASSEMBLY FOR 60" SKATE LH	SK-HYD-B10-60
6	BOGIE SIDE PLATE ASSEMBLY FOR 60" SKATE RH	SK-HYD-B11-60
7	ROLLER ASSEMBLY	SK-HYD-RA1
8	PIVOT ROLLER ASSEMBLY	SK-HYD-RA2
9	MAIN BAR	SK-OP916/B-MB
10	LIFT RAMP	SK-HYD-H40
11	2" ROLLER AXLE	SK-HYD-H58
12	1 1/2" ROLLER	SK-HYD-H61
13	1 1/2" ROLLER AXLE	SK-HYD-H62
14	1.475" X 3/8" I/D SPACER	SK-HYD-H64
15	.975" X 3/8" I/D SPACER	SK-HYD-H65
16	.950" X 1/2" I/D SPACER	SK-HYD-H66
17	2" X 1/2" RIVET	SK-HYD-H67
18	2" X 3/8" RIVET	SK-HYD-H68
19	TRUNION	SK-HYD-H73
20	2 1/2" X 1/2" PIVOT PIN	SK-HYD-H74
21	FRAME SIDE PLATE FOR 60" MASTER SKATE FRAME LH	SK-HYD-H80-60
22	FRAME SIDE PLATE FOR 60" MASTER SKATE FRAME RH	SK-HYD-H81-60
23	ALUMINIUM FRAME TOP FOR 60" MASTER SKATE FRAME	SK-HYD-H82-60
24	6" SIDE STRENGTHENERS	SK-HYD-H85

25	FRAME RIVET	SK-HYD-H86
26	END RIVET -2-9/16" X 3/8"	SK-HYD-H90
27	SPACER – 2" X 5/8"	SK-HYD-H91
28	LONG BOGIE SIDE PLATE FOR 60" BOGIE ASSEMBLY LH	SK-HYD-H92-60
29	SHORT BOGIE SIDE PLATE	SK-HYD-H93
30	RETAINING PIN	SK-HYD-H94
31	CONNECTING BLOCK	SK-HYD-H96
32	LONG BOGIE SIDE PLATE FOR 60" BOGIE ASSEMBLY RH	SK-HYD-H97-60
33	SIDE STRENGTHENERS FOR 60" SKATE FRAME	SK-HYD-H84-60
34	0.540" RIVET	SK-LL-A10/A
35	9/16" OP RODS	SK-OPMF/B-9/16

Hydraulic Pump (SK-HYD-HP)

Item	Description	Part No.
1	PLUNGER	SK-HYD-H1
2	PLUNGER PIN	SK-HYD-H2
3	HANDLE BASE BLOCK	SK-HYD-H3
4	RELIEF VALVE AND FILLER PLUG	SK-HYD-H4
5	OS 9 OIL SEAL	SK-HYD-H5
6	HANDLE BASE PIN	SK-HYD-H6
7	RELEASE HOUSING	SK-HYD-H7
8	OS19 OIL SEAL	SK-HYD-H8
9	RELEASE PIN	SK-HYD-H9
10	16 O/D X 8.2 I/D X 0.9 DISC SPRINGS	SK-HYD-H10
11	OS 7 OIL SEAL	SK-HYD-H11
12	SPRING PAD	SK-HYD-H12
13	LOCKING RING	SK-HYD-H13
14	RAM	SK-HYD-H14
15	RAM SEAL	SK-HYD-H15
16	BEARING RING	SK-HYD-H16
17	2BA X ¼" SKT SET SCREW	SK-HYD-H17
18	FILTER PLUG	SK-HYD-H18
19	FILTER	SK-HYD-H19
20	5/16" STEEL BALL	SK-HYD-H20
21	7/32" STEEL BALL	SK-HYD-H21
22	¼" STEEL BALL	SK-HYD-H22
23	SPRING PIN	SK-HYD-H23
24	RELEASE BALL SPRING	SK-HYD-H24
25	RELEASE VALVE SEAT	SK-HYD-H25
26	BLOW OFF PIN	SK-HYD-H26
27	BLOW OFF SPRING	SK-HYD-H27
28	BLOW OFF ADJUSTING COLLAR	SK-HYD-H28
29	5/16" BSF X ¼" SKT SET SCREW (CUP POINT)	SK-HYD-H30
30	½" I/D CHEVRON SEAL	SK-HYD-H31
31	PLUNGER GLAND	SK-HYD-H32
32	OS 13 OIL SEAL	SK-HYD-H33
33	OPERATING HANDLE	SK-HYD-H34
34	UNIVERSAL SPANNER	SK-HYD-H35
35	LOCKING RING OIL SEAL	SK-HYD-H36
36	BLANKING PLUG	SK-HYD-H37

Hydraulic Extension Kit (SK-HYDEXTHD60)

Item	Description	Part No.
1	60" HYDRAULIC EXTENSION SKATE FRAME	SK-HYDEXT-A01-60
2	BOGIE ASSEMBLY FOR 60" EXTENSION	SK-HYDEXT-A02-60
3	BOGIE SIDE PLATE ASSEMBLY FOR 60" SKATE LH	SK-HYD-B10-60
4	BOGIE SIDE PLATE ASSEMBLY FOR 60" SKATE RH	SK-HYD-B11-60
5	ROLLER ASSEMBLY	SK-HYD-RA1
6	PIVOT ROLLER ASSEMBLY	SK-HYD-RA2
7	FORK LINK ASSEMBLY	SK-HYDEXT-B20
8	LH FORK LINK WITH STOP PIN	SK-HYD-H77
9	RH FORK LINK WITH STOP PIN	SK-HYD-H78
10	1 1/2" ROLLER	SK-HYD-H61
11	1 1/2" ROLLER AXLE	SK-HYD-H62
12	1.475" X 3/8" I/D SPACER	SK-HYD-H64
13	.975" X 3/8" I/D SPACER	SK-HYD-H65
14	.950" X 1/2" I/D SPACER	SK-HYD-H66
15	2" X 1/2" RIVET	SK-HYD-H67
16	2" X 3/8" RIVET	SK-HYD-H68
17	1 1/2" X 3/8" RIVET	SK-HYD-H75
18	.950" X 3/8" I/D SPACER	SK-HYD-H76
19	ALUM FRAME TOP FOR 60" EXTENSION SKATE FRAME	SK-HYD-H83-60
20	6" SIDE STRENGTHENERS	SK-HYD-H85
21	FRAME RIVET	SK-HYD-H86
22	LONG BOGIE SIDE PLATE FOR 60" BOGIE ASSEMBLY LH	SK-HYD-H92-60
23	SHORT BOGIE SIDE PLATE	SK-HYD-H93
24	RETAINING PIN	SK-HYD-H94
25	SMALL RETAINING PLATE	SK-HYD-H95
26	LONG BOGIE SIDE PLATE FOR 60" BOGIE ASSEMBLY RH	SK-HYD-H97-60
27	FRAME SIDE PLATE FOR 60" EXTENSION SKATE FRAME LH	SK-HYD-H80-60
28	FRAME SIDE PLATE FOR 60" EXTENSION SKATE FRAME RH	SK-HYD-H81-60
29	SIDE STRENGTHENERS FOR 60" SKATE FRAME	SK-HYD-H84-60
30	.540" RIVET	SK-LL-A10/A
31	STOP PIN	SK-LL-A28/A
32	2" ROLLER	SK-HYD-H56
33	M8 X 35MM C'SUNK SOCKET SCREW	SK-HYD-H87
34	M8 X 25MM C'SUNK SOCKET SCREW	SK-HYD-H88
35	M12 X 35MM C'SUNK SOCKET SCREW	SK-HYD-H89
36	SPRING RETAINING WASHER	SK-HYD-H71

Track drop hook and clevis:

Parts required (1 pair of drop hooks and 1 pair clevis pin assy's):

2 off drop hook assembly (SK-HYD-H108)

2 off clevis pin assembly (SK-HYD-B05)

8 off 1 5/8" (41.2mm) x 5/16" (7.9mm) hollow end rivets

Track Standard hook and clevis:

Parts required (1 pair of Standard hooks and 1 pair clevis pin assy's):

2 off Standard hook assembly (SK-HYD-H104)

2 off clevis pin assembly (SK-HYD-B04)

8 off 1 5/8" (41.2mm) x 5/16" (7.9mm) hollow end rivets

3.0 System Specification.

Track Specification:

Dimensions	mm
LENGTH	27,400 (Total running length)
WIDTH (SINGLE TRACK)	118 (External)
HEIGHT	40

Master Skate Specification:

Dimensions	mm
LENGTH (Pallet load)	1500
WIDTH	75
HEIGHT (Pallet load)	60

Combined System Specification:

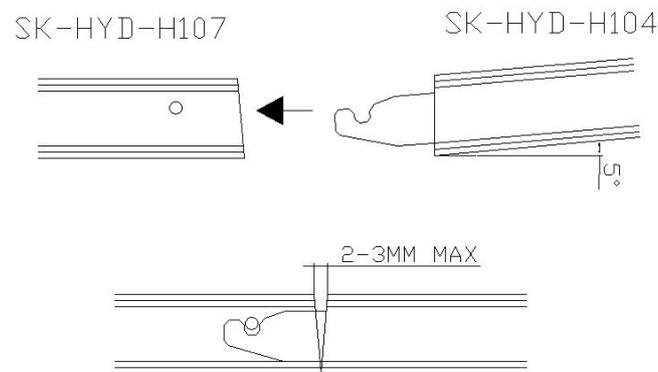
Dimensions	mm
HEIGHT (Skate Lowered)	73
HEIGHT (Skate Raised)	99
LENGTH (Pallet load)	8,500

MAX. LOAD (complete system) – 20,000 KG

MAX HYDRAULIC SYSTEM PRESSURE – 30,919 PSI (2132 BAR)

4.0 System Operation.

4.1 Track linkage assembly



- ? The standard hook and clevis linkage used to link the portable track together is assembled by lifting the end of the length of track to +5° and pushing the hook (fig.1) into the clevis pin (fig.2). The track can then be lowered and the track is locked in place. To disengage track reverse the procedure.
- ? Check for correct locking of track by running finger along the surface of the track joint, (along roller path). The maximum allowable step or gap is 1mm, any greater and the track is not correctly linked together.



Fig.1 (SK-HYD-H104)



Fig.2 (SK-HYD-H107)

- ? The drop hook system is used for ease of assembly when at the end of the container and is simply dropped together in parallel sections and the hook (fig.3) drops over the clevis pin (fig.4) and is held in place. Check for correct locking of track by running finger along the surface of the track joint, (along roller path). The maximum

allowable step or gap is 1mm, any greater and the track is not correctly linked together. To disengage the track, the end where the hook is to be lifted by at least 16mm and then the track is free to be pulled out of the container and disassembled, the track remains in place on the plinth.

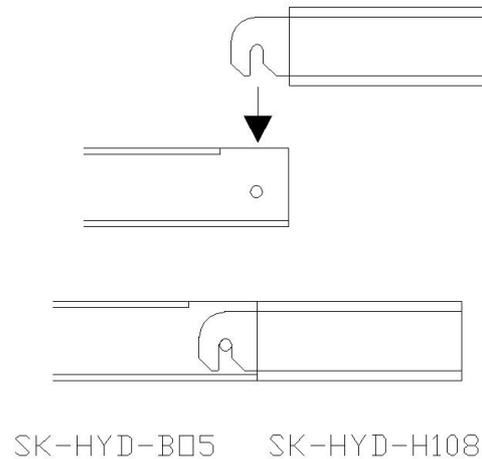


Fig.3 (SK-HYD-H108)



Fig.4 (SK-HYD-B05)

- ? The track inlay that can be seen screwed to the bottom of the track running face in Fig.4 is added to track for use in heavy duty service and to prevent the track deforming unacceptably under heavy loads.
- ? Over a period of time and excessive use the track will form a deformation in the track where the rollers are in contact with the track inlay. This is normal but the operator must be aware of the slight difference in clearance that may result.

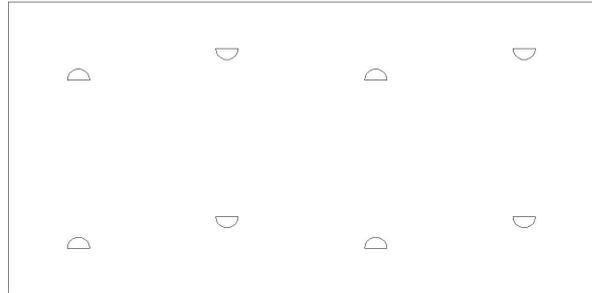
4.2 Skate clearance requirements

- ? Depending upon the skate track combination being used there are minimum and maximum amounts of clearance required between the skate and the load to ensure optimum lift.
- ? The standard clearance between skate and load for the hydraulic skates is 3-5mm. This will allow maximum lift of around 20-22mm.
- ? When lifting heavy loads on a wooden pallet a crushing allowance must be accounted for. A wooden pallet will crush slightly on its first lift approximately 1-2mm depending upon the load lifted. This should not affect the efficiency of the loading system, it is just that the skate/pallet clearance may be slightly greater after a heavy lift. Please note that softwoods will crush more than hardwoods and any excessive clearance caused by crushing must be shimmed up to give a full lift.
- ? Where the clearance between the skate and pallet is in excess of 5mm the skate should be shimmed up to give minimum clearance and an even lift. Where there is excessive clearance between the skate and load, up to 200mm, a high beam must be used in conjunction with the skate.
A high beam is simply a large spacer which is used in pairs to take up the space between the skate and the load, and are available in sizes to suit many different loads.
- ? When high beams are being used, the clearance must be the total lowered height of skate, plus beam height, plus the standard skate allowance of 3-5mm.

4.3 Container Loading.

- ? Depending upon the type of load being moved and the size of pallets involved, the system will need to be set up accordingly. When transporting steel coils or other heavy loads there will have to be timbers laid as cross bearers inside the container before the mini pallets with the coils on are loaded into the container and placed on top. This will give an **evenly distributed load** and less risk of overloading the container floor.
- ? Load restraints must be used to suit cargo and transport method: wood chocks, air dunnage bags, one-way polyester straps or similar as specified by the container loading company responsible.

- ? If the container is to be unloaded by the Joloda system, wooden semi-circular track spacers are to be nailed in position on the container floor (see diagram below), and sent with the container. This will aid the position of the Joloda track for the unloading operation. Spacers measure approx 100mm diameter and 20-25mm high.



Use of a Jumbo Pallet

A jumbo pallet is used when the load requires to be pre-assembled and then one shot loaded, e.g. many small pallets can be assembled outside the container on a custom made jumbo pallet then one shot loaded. The jumbo pallet will also assist in **evenly distributing** the load and therefore reducing the risk of overloading the container floor.

- ? When using a jumbo pallet the procedure is as follows: The load is pre-assembled on the jumbo pallet. Portable track is placed on the container floor and set to the required gauge, (track centres). This can be done by using three equal sized pieces of wood to set the track distance from the container wall. Track alignment must be within 1/8" (3mm) from centre to centre.
- ? The skates are raised and the loaded pallet is rolled/loaded into the container.
- ? The skates are lowered once pallet is in position and skates and track are removed so that no equipment stays in the container.
- ? When loading, one skate is to be fully pumped up and then the second skate slowly pumped up until the load is live and can then be moved. If at any time the load must be stopped moving in an emergency, the operating handles (one or both), are to be pushed upwards towards the load which will automatically drop the skates and the load will be dropped to the floor and stop moving.
- ? Under normal loading conditions the load should be dropped within 400mm of the end of the container to ensure the load stopping before the end wall.

4.4 Container Unloading.

- ? Portable track is slid under the load and in line with the track outside the container. The minimum clearance required between the floor and the pallet is 75mm and every effort must be made that the track is parallel.
- ? Where the container has been loaded by a Joloda system previously there will be half moon track spacers in position on the container floor where the track is fed between the spacers and is held in position and parallel.
- ? Skates and extensions are connected together, placed into the track and rolled under the pallet.
- ? The skates are pumped up raising the pallet clear of the container floor making the load live.
- ? The whole load is then pulled out and rolled clear of the container.
- ? Pushing the handles fully forward lowers the load onto the floor.
- ? The skates and track are then free to be removed and unloading can commence.

4.5 Loading using Joloda loading plinth.

An angled 1° loading plinth is normally used so that gravity aids the loading operation, the container load can also be pre-assembled before the container arrives. The plinth can be used with a container demounted from a truck at ground.

The 1° incline of the plinth is lined up with a 1° incline of the container so that when the skates are raised and 'live' it self loads down the slope into the container using the affects of gravity.

Four manual corner jacks can be used to adjust container and give a 1° incline to the floor to align with the plinth.

If the load is particularly heavy and it is to be one shot loaded it is advised in the interest of safety to use a parallel (level) plinth or container so that the load can be controlled safely by pushing / pulling.

For unloading, a fork lift truck, or a hand or electric 1 tonne winch can be used to pull the load out of the container.

Sideways alignment of the plinth and container is achieved by locating the container on two locating pins on the loading end of the plinth. The locating pins also act as a lock holding the plinth and the container together during the loading operation.

IMPORTANT SAFETY NOTE: It is critical that the plinth and container floor are at the same level and location pins are fully engaged. The track in the container and the track on the plinth must be aligned vertically to within 1mm to prevent the skate jamming when entering the container.

The loading procedure is as follows:

- ? The container is mounted on the loading plinth location pins ensuring the pins are fully engaged with container corner castings and track drop hooks (SK-HYD-H108) is linked into the drop clevis (SK-HYD-B05).
- ? Check lateral track alignment of track and adjust if necessary. Lateral adjustment bars for track alignment on the plinth are available on a Joloda plinth. These are operated by a crank handle (one at each end of the plinth), which adjusts the track in a horizontal plane.
- ? Skates and extensions are rolled under pallet.
- ? The unit load is then stacked on the pallet.
- ? To make the load 'live' one skate is to be fully pumped up then the second skate is to be pumped up until the load starts to move into the container. When the load is in position the operating handles are to be pushed upwards to drop the load.
- ? The skates when in fully lowered position can be removed from the track.
- ? The track can now be pulled from container and load restrained using preferred method.
- ? The container can now be lifted from the plinth location pins and loaded ready for transit.

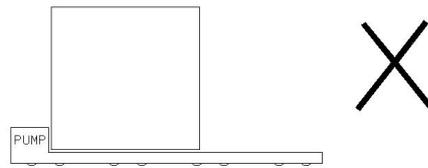
4.6 Other methods of one shot loading.

- ? The procedure for use of the master skate on its own (without any extensions), is the same. The pallet to be lifted must be the same size or slightly longer than the master skate and the maximum amount of contact between the pallet and the skate is required. It is good practise to have the majority of the load weight as close as possible to the box end of the master skate.

Good, skate same size



Pallet will need double shifting



Pallet too large, may damage skate

Good, pallet slightly larger

5.0 Routine maintenance.

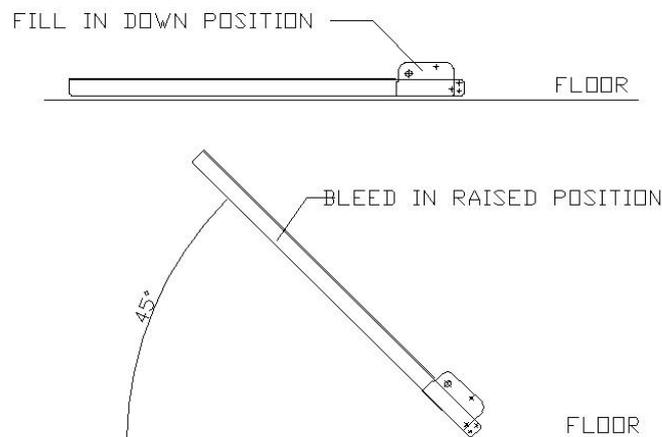
- ? At regular intervals the skates and track must be visually inspected for damage. Ensure free movement of rollers and that track is clear of dirt before use.
- ? Check skate pull back spring (SK-HYD-H72), is fully operational and is not damaged or loose.
- ? Check skate frames with a straight edge for bending in both planes.
- ? The track inlay screws (SK-LL-A25), should be checked regularly as they can come loose or shear when the track is overloaded and should be replaced immediately.
- ? It is critical that the Track is inspected every time it is assembled / disassembled for bent or broken clevis pins or hooks, as incorrectly coupled track is dangerous and can cause damage to the skates or load.
- ? Check track is straight by eye. If lengths of track are found to be bent it is possible to straighten manually in a fly press.
- ? The hydraulic pump should be checked regularly for leaks / damage and should be replaced if problems occur.
- ? **Use in temperatures below 0°C:** When the system is being used in low temperatures the hydraulic oil in the master pump should be changed from Shell Tellus 37 to Aeroshell Fluid 41. It is possible to have a summer and a winter pump supplied by Joloda which can be changed when required.

Oil top up procedure:

- ? Ensure ram is fully retracted.
- ? The oil level must be checked by removing filler plug.
- ? The level should be just at the bottom of the filler plug hole when the pump is in the vertical position. **DO NOT OVERFILL.**
- ? Replace filler plug.

Pump Bleed procedure:

- ? The skate must be held at a 45° angle with the pump end on the floor.
- ? The operating handle must be repeatedly pumped until the skate is fully raised to its maximum.
- ? Place the skate flat on the floor and apply enough weight to lower the skate whilst relieving the pump of pressure.
- ? Any air in the system will return to the reservoir.
- ? The skate can now resume service.



6.0 Spares list.

Hydraulic pump removal Procedure:

- ? Ensure skate is in lowered position
- ? Remove hydraulic pump by loosening cup point screw (part No. SK-HYD-H30), and remove pivot pin (part No. SK-HYD-H74)
- ? This will allow the complete pump assembly to be removed.

Track drop hook and clevis:

The spares available for the track assembly is the drop hook, (SK-HYD-H108), and clevis pin, (SK-HYD-B05) assemblies. As these are exposed at the ends of the track they can get damaged /broken and are available as spares.

Parts required (1 pair of drop hooks and 1 pair clevis pin assy's):

2 off drop hook assembly (SK-HYD-H108)
2 off clevis pin assembly (SK-HYD-B05)
8 off 1 5/8" (41.2mm) x 5/16" (7.9mm) hollow end rivets

Replacement Procedure:

- ? Using a 5/16" (7.9mm) drill the two rivets holding in the drop hook or clevis assemblies should be drilled out and old rivets removed. This should leave the assembly free to be slid out from the end of the track.
- ? The replacement assembly can then be pushed into the track until the rivet holes line up with those in the track.
- ? The two 5/16" (7.9mm) rivets can now be replaced and peined over to secure the assembly in place.

Track Standard hook and clevis:

The spares available for the track assembly is the standard hook, (SK-HYD-H108), and clevis pin, (SK-HYD-B05) assemblies. As these are exposed at the ends of the track they can get damaged /broken and are available as spares.

Parts required (1 pair of Standard hooks and 1 pair clevis pin assy's):

2 off Standard hook assembly (SK-HYD-H104)
2 off clevis pin assembly (SK-HYD-B04)
8 off 1 5/8" (41.2mm) x 5/16" (7.9mm) hollow end rivets

Replacement Procedure:

- ? Using a 5/16" (7.9mm) drill the two rivets holding in the hook or clevis assemblies should be drilled out and old rivets removed. This should leave the assembly free to be slid out from the end of the track.

- ? The replacement assembly can then be pushed into the track until the rivet holes line up with those in the track.
- ? The two 5/16”(7.9mm) rivets can now be replaced and peined over to secure the assembly in place.

Master skate Bearing, axle and roller replacement procedure:

Parts required:

- 6 off 0.540 x 3/8” (13.7 x 9.5mm) Hollow end rivets, (Part No. SK-LL-A10/A).
- 15 off 2” x 3/8”(50.8 x 9.5mm) Hollow end rivets, (Part No. SK-HYD-H68).
- 6 off 2” (50.8mm) Main rollers complete with bearings, axles and ‘o’ ring seals. (SK-HYD-H56)
- 3 off 1 ½” (38.1mm) Pivot roller complete with bearings, axle and ‘o’ ring seals. (SK-HYD-H61)

Replacement Procedure:

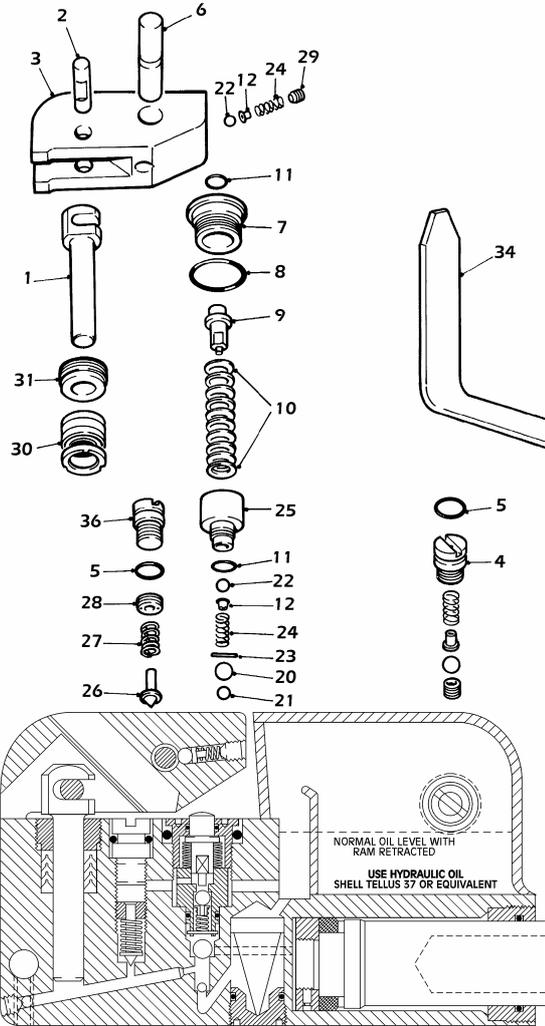
- ? Ensure skate is in lowered position.
- ? Remove hydraulic pump by loosening cup point screw (part No. SK-HYD-H30), and remove pivot pin (part No. SK-HYD-H74).
- ? This will allow the complete pump assembly to be removed.
- ? Drill to remove 15 x 2” rivet heads leaving small rivets in place.
- ? Punch out old rivets using a 5/16” (7.9mm) dia. punch.
- ? The bogie can now be separated using wedges to separate side plates.
- ? Punch out the old axles progressively with 5/16” (7.9mm) dia. punch. DO NOT drive axle length through side plate as this will destroy the interference fit and retaining rim. Holding axles in place mark the spacers to ensure replacement in original positions.
- ? Reassemble with 6 new main rollers and 3 new pivot roller complete with axles, bearings and seals. Replacing spacers in original positions. DO NOT USE OLD AXLES.
- ? Reassemble in reverse sequence to removal. Total minimum roller end clearance = 010” (0.25mm). Bogie finished width dimension = 1.980” (50.29mm) +.000” – .005” (0.125mm).

7.0 Troubleshooting.

SYMPTOM	DIAGNOSIS	REMEDY
Skate does not lift when operation lever is pumped	Air in hydraulic system. Low fluid level in reservoir	Bleed system Check fluid level and top up if necessary. Fluid must be filled with Ram fully retracted.
	Hydraulic pump leakage	Inspect pump for leakage, strip down in workshop.
	Hydraulic pump failure	Remove and replace
	Linkage failure within skate	Remove skate and inspect for damage
Skate lifts but does not move in track	Bent skate frame	Inspect skate and check with straight edge for straightness, replace if necessary
	Damaged or bent track caused by overloading	Inspect track and replace if necessary
	Roller bearing failure	Remove skate and inspect bearings
Skate master and extensions do not link together fully.	Master and extension are at different heights.	Ensure both master and extensions are in down position.
	Fork links at ends of master and extensions are damaged and burred over	File down burrs on fork links until they link together
Skate lifts and moves then stops.	Track not aligned correctly	Check track for parallel +/- 3mm centre to centre.
	Damage to track linkage	Inspect track hooks and clevis pins for damage and replace if necessary.
	Excessive wear to track	Inspect track for wear and replace if necessary.



Hydraulic Skate Pump Diagram and Parts List



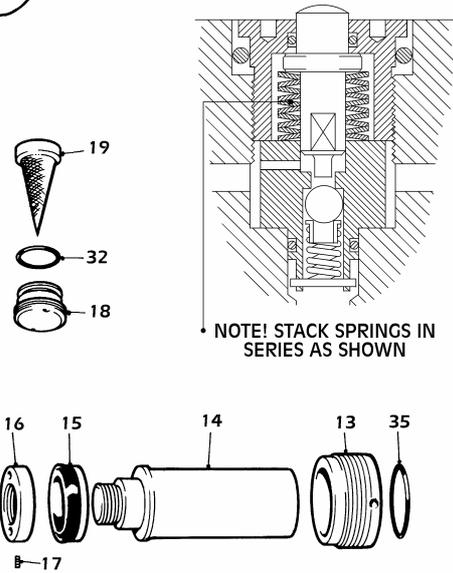
OPERATING INSTRUCTIONS

- Elevate the Skate:** Move operating lever from vertical to rear.
- To Lower:** Move operating lever fully forward to operate the Release Pin (9) for instant braking control.
- Most Important:** Both operating levers must remain in place during the whole time the JOLODA is elevated - otherwise there is no braking control available to the operator.

TROUBLE SHOOTING

- Joloda Not Elevating:** Check oil level at plug (4) with ram (14) retracted.
- To Bleed System:** Stand the JOLODA on end with pump underneath and pump to return air to reservoir.
- Use Shell Tellus 37 or equivalent Hydraulic Fluid.**

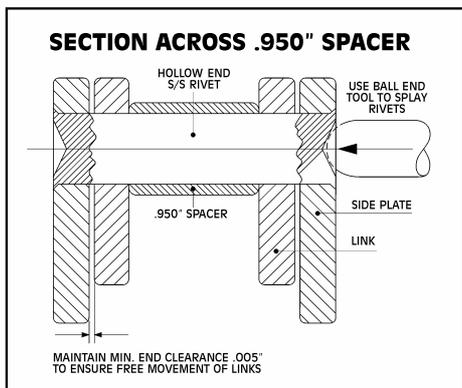
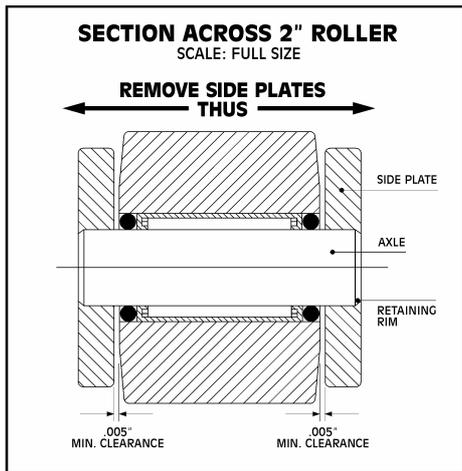
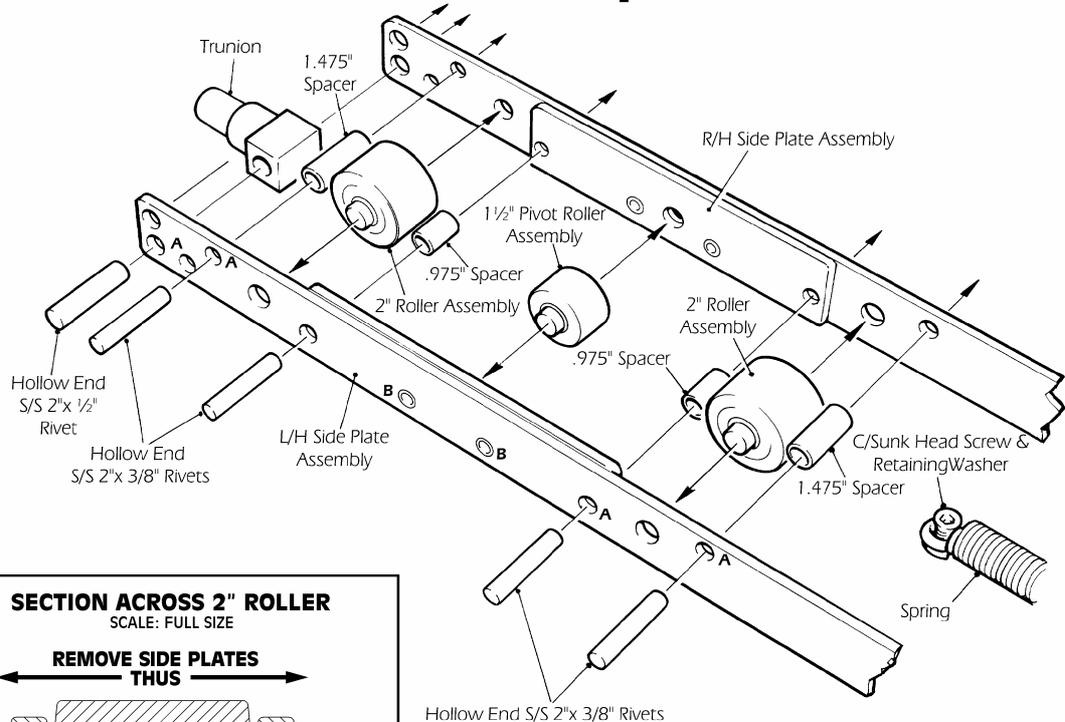
VALVE ASSEMBLY



ITEM	DESCRIPTION	NO.	PART NO.	ITEM	DESCRIPTION	NO.	PART NO.
1	Plunger	1	SK-HYD-H1	19	Filter	1	SK-HYD-H19
2	Plunger Pin	1	SK-HYD-H2	20	1/4" Dia Steel Ball	1	SK-HYD-H20
3	Handle Base Block	1	SK-HYD-H3	21	1/2" Dia Steel Ball	5	SK-HYD-H21
4	Relief Valve & Filler Plug	1	SK-HYD-H4	22	1/4" Dia Steel Ball	3	SK-HYD-H22
5	OS 9 Oil Seal	2	SK-HYD-H5	23	Spring Pin	1	SK-HYD-H23
6	Handle Base Pin	1	SK-HYD-H6	24	Release Ball Spring	3	SK-HYD-H24
7	Release Housing	1	SK-HYD-H7	25	Release Valve Seat	1	SK-HYD-H25
8	OS19 Oil Seal	1	SK-HYD-H8	26	Blow Off Pin	1	SK-HYD-H26
9	Release Pin	1	SK-HYD-H9	27	Blow Off Spring	1	SK-HYD-H27
10	16 OD x 8.2 ID x .9 disc springs	10	SK-HYD-H10	28	Blow Off Adjusting Collar	1	SK-HYD-H28
11	OS 7 Oil Seal	2	SK-HYD-H11	29	1/4" BSF x 1/4" Skt Set Screw (Cup point)	7	SK-HYD-H30
12	Spring Pad	3	SK-HYD-H12	30	1/2" ID Chevron Seal	1	SK-HYD-H31
13	Locking Ring	1	SK-HYD-H13	31	Plunger Gland	1	SK-HYD-H32
14	Ram	1	SK-HYD-H14	32	OS 13 Oil Seal	1	SK-HYD-H33
15	Ram Seal	1	SK-HYD-H15	33	Operating Handle	1	SK-HYD-H34
16	Bearing Ring	1	SK-HYD-H16	34	Universal Spanner	1	SK-HYD-H35
17	2 BA x 1/4" Skt Set Screw	1	SK-HYD-H17	35	Locking Ring Oil Seal	1	SK-HYD-H36
18	Filter Plug	1	SK-HYD-H18	36	Blanking Plug	1	SK-HYD-H37



Hydraulic Skate Axle & Roller Replacement Procedure



Hollow End S/S 2"x 3/8" Rivets

MATERIALS REQUIRED

- 2" x 1/2" Hollow End Rivets (Part No. H67)
- 2" x 7/8" Hollow End Rivets (Part No. H68)
- 2" Main Rollers complete with Bearings, Axles and 'O' Ring Seals
- Shell Alvania RA Lubricant or Equivalent

REPLACEMENT PROCEDURE

First remove hydraulic pump by loosening cup point screw (Part No. H30) and removing pivot pin (Part No. H74).

Secondly remove c/sunk head screw and spring retaining washer (Part Nos. H70 & H71) on spring. This will allow the complete internal assembly to be removed.

Drill to remove rivet heads marked 'A' leaving small rivets marked 'B' in place and remove side plate assemblies as shown in sectional drawing. Punch out old axles progressively with 7/8" dia. punch. DO NOT drive axle length through the side plate as this will destroy the interference fit & retaining rim holding axles in place (see sectional drawing). Mark spacers to ensure replacement in original positions.

Reassemble with new main rollers and new pivot roller complete with axles, bearings & seals and link rivets, replacing spacers in original position.

DO NOT USE OLD AXLES

Reassemble in reverse sequence to removal.

Use heavy grease to retain 'O' rings in roller and help initial seal bedding.

Total minimum roller end clearance = .010"

Bogie finished width dimension = 1.980" + .000" - .005"



Patents applied for (U.K. & Worldwide)
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