



S3970RT

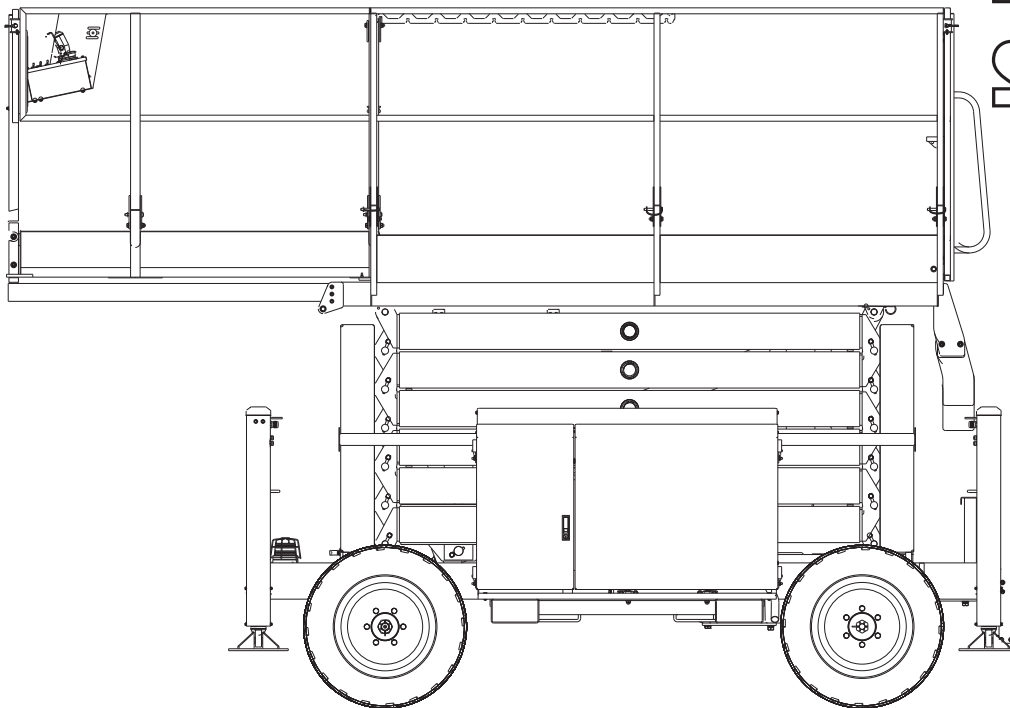
S3370RT

S2770RT

S3970BE

S3370BE

S2770BE



Diesel
Bi-Energy 24V DC

REPAIR PARTS MANUAL

Part Number 13865-2

June 2014 (Rev A)

Serial Number Sxx70RT-07-000100 and after

General Specifications

General Specifications S3970RT	3
General Specifications S3370RT	4
General Specifications S2770RT	5
Engine Data	6
Engine Oil Charts	6
Classification	7
AS1418.1 Group Classification	7
Commissioning Information	7

Maintenance Information

About this Manual:	9
Manual Organization	9
General Specifications	9
Maintenance	9
Control system information	9
Repair parts and drawings	9
Hydraulics	9
Electrical	9
Options	9
Maintenance and Schematics	9
Maintenance information	9
Maintenance schedules	10
Daily Maintenance	11
Pre-operational inspection	11
90 Day or 150 Hour Maintenance (Trained Service Technician)	12
Yearly or 500 Hour Maintenance (Trained Service Technician)	12
Lubrication	13
Pressure gun application	13
King pins	13
Tie rods	13
Steer cylinder end	13
Wheel bearings, drive wheels	13
Engines	13
Hydraulic oil reservoir	13
Return filter	13
Door hinges and latches	14
Slide pads	14
Scissor arm bearings	14
Batteries	14
Rough Terrain Scissor Interlock Tests	15
Stabiliser locked out when platform elevated test	15
Elevation locked out when axles not stowed test	15
Elevation locked out when tilted test	15

Preventive inspection maintenance 90 day or 150 hour checklist	16
Torque chart	18
To order service or repair parts	19
Manuals	19
Product Warranty	19
Responsibilities	19

Control System Information

Scissor Lift Control System	21
Work time	21
Water	21
Alternator	21
Oil Pressure	21
Other messages	21
GP400 Menus Available with EZcal	21
Help Menu:	21

Section 1. - Repair Parts

Chassis Assembly Drawing	1-2
Chassis assembly	1-3
Steer assembly drawing	1-4
Steer assembly	1-5
Swing arms assembly drawing	1-6
Swing arms assembly	1-7
Hydraulic cabinet drawing	1-8
Hydraulic cabinet	1-9
Engine cabinet assembly drawing	1-10
Engine cabinet assembly	1-11
Cabinets drawing	1-12
Cabinets	1-13
Stabiliser drawing	1-14
Stabiliser	1-15
Base, stack, platform drawing	1-16
Base, stack, platform	1-17
Platform drawing	1-18
Platform	1-19
Platform drawing	1-20
Platform	1-21
Platform rear handrail drawing	1-22
Platform rear handrail	1-23

Table of Contents

Emergency lower S3970RT, S3370RT	1-24
Emergency lower S2770RT	1-25
Scissor stack tees S3970RT, & S3370RT	1-26
Scissor stack assembly drawing, S3970RT	1-28
Scissor stack assembly S3970RT	1-29
Scissor stack assembly drawing, S3370RT	1-30
Scissor stack assembly S3370RT	1-31
Scissor stack assembly drawing, S2770RT	1-32
Scissor stack assembly S2770RT	1-33
Engine assembly drawing, Kubota D902	1-34
Engine assembly, Kubota D902	1-35
Fuel tank assembly, diesel fuel	1-36
Hydraulic oil tank assembly	1-37
Hydraulic oil tank assembly drawing	1-38
Placards and decals drawing	1-40
Placards and decals installation	1-41

Section 2. - Hydraulics

Hydraulic schematic	2-3
Hose Part Numbers and Colour Codes	2-4
Hose part numbers and colour codes	2-4
Hose part numbers and colour codes	2-5
Manifold, main	2-6
Manifold assembly, main	2-7
Manifold, 4WD	2-8
Manifold assembly, 4WD	2-9
Manifold, stabilisers	2-10
Manifold assembly, stabilisers	2-11
Hydraulic cylinders and seal kits	2-12
Cylinder, steer	2-13
Cylinder, axle	2-14
Main lift cylinder, lower	2-15
Main lift cylinder, upper	2-16
Stabiliser cylinder	2-17

Section 3. - Electrical

Looms	3-2
Electrical schematic, sheet 1 of 3	3-3
Electrical schematic, sheet 2 of 3	3-4
Electrical schematic, sheet 3 of 3	3-5
GP400I/O menu page 1 of 2	3-6
GP400I/O menu page 2 of 2	3-7
GP400I/O allocations	3-8
Matrix I/O allocations	3-9
Lower control box drawing	3-10
Lower control box assembly	3-11
Platform control box drawing	3-12
Platform control box assembly	3-13

Section 4. - General Options

AC240V at base	4-2
AC240V at Platform	4-3
4-4	

Section 4. - 24Volt DC Option

24Volt DC Option	4-5
24VDC option drawing	4-6
24VDC option	4-7
24VDC cabinet drawing	4-8
24VDC cabinet	4-9
24VDC battery box mounting	4-10

■ General Specifications S3970RT

SPECIFICATIONS	S3970RT	
Nominal working height (wheels)	13.5m	44.2'
Nominal working height (stabilisers)	13.81	45.3'
Roll out deck size	1200mm	48"
Drive speed (below 2.4m)	0 to 4.5kph	0 to 2.8mph
Drive speed (above 2.4m)	0 to 0.35kph	0 to 0.22mph
Safe working load - Main deck (Roll out deck not extended)	350kg	771lbs
Safe working load - Main deck Safe working load - Roll out deck extended	230kg 120kg	507lbs 264lbs
Platform size	2.73 x 1.65m	8' 11" x 5' 5"
Stowed height	2.95m	9.6'
Stowed height (hand rails folded down)	2.15m	7'
Overall length	3.36m	11' 0"
Overall width	1.77m	5' 9"
Gradeability	30%	
Lift time	50 seconds	
Turning radius (inner)	2.38m	7' 8"
Turning radius (outer)	4.75m	15' 6"
Maximum wind speed (12.5m/s)	45km/h	28mph
Insulation rating	Nil	
Tyres - Poly filled loader lug	27" x 10.5" x 15"	
Overall weight	3790kg	8355lbs
Ground clearance	350mm	13.8"
Maximum sound level at platform	86db	
Stabiliser maximum load	2075kg	4574lb
Maximum chassis inclination	2.5°/4°	
Allowable manual force	400N	

General Specifications

■ General Specifications S3370RT

SPECIFICATIONS	S3370RT	
Nominal working height	12.12m	39' 2"
Roll out deck size	1200mm	48"
Drive speed (below 2.4m)	0 to 4.5kph	0 to 2.8mph
Drive speed (above 2.4m)	0 to 0.35kph	0 to 0.22mph
Safe working load - Main deck (Roll out deck not extended)	450kg	990lbs
Safe working load - Main deck Safe working load - Roll out deck extended	330kg 120kg	726lbs 264lbs
Platform size	2.73 x 1.65m	8' 11" x 5' 5"
Stowed height	2.7m	8' 10"
Stowed height (hand rails folded down)	2.0m	6' 6"
Overall length	3.36m	11' 0"
Overall width	1.77m	5' 9"
Gradeability	35%	
Lift time	50 seconds	
Turning radius (inner)	2.38m	7' 8"
Turning radius (outer)	4.75m	15' 6"
Maximum wind speed (12.5m/s)	45km/h	28mph
Insulation rating	Nil	
Tyres - Poly filled loader lug	27" x 10.5" x 15"	
Overall weight	3620kg	7964lbs
Ground clearance	350mm	13.8"
Maximum sound level at platform	86db	
Stabiliser maximum load	2075kg	4574lb
Maximum chassis inclination	2.5°/4°	
Allowable manual force	400N	

■ General Specifications S2770RT

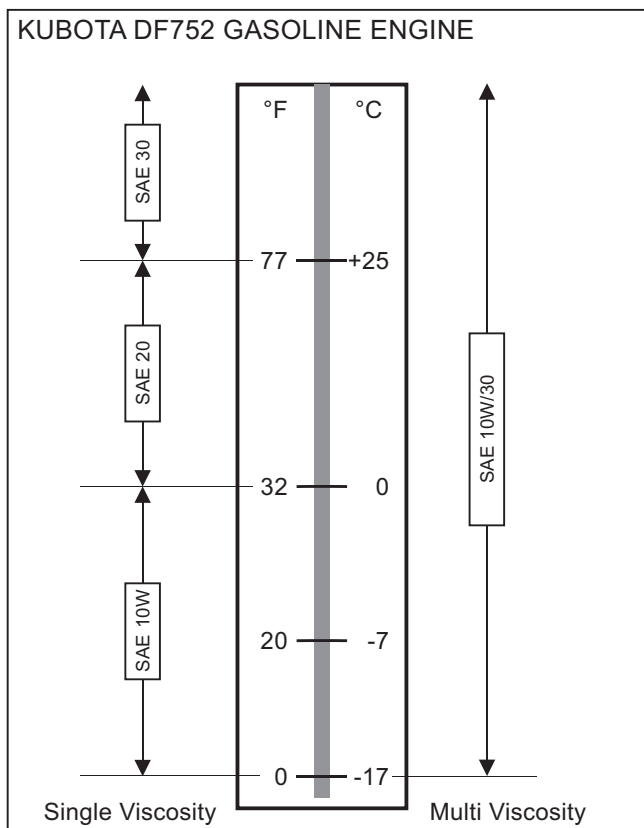
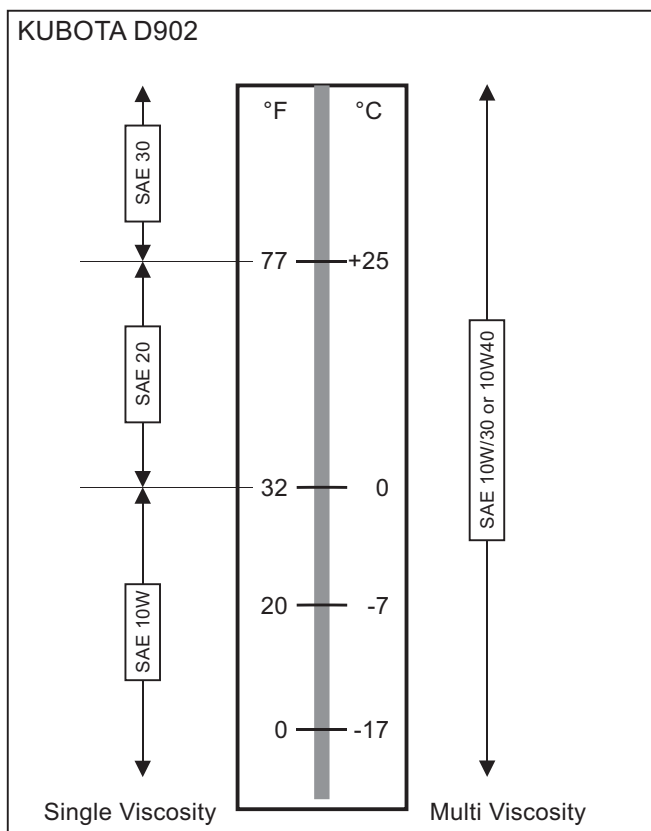
SPECIFICATIONS	S2770RT	
Nominal working height	10.28m	33' 9"
Roll out deck size	1200mm	48"
Drive speed (below 2.4m)	0 to 4.5kph	0 to 2.8mph
Drive speed (above 2.4m)	0 to 0.9kph	0 to 0.6mph
Safe working load - Main deck (Roll out deck not extended)	580kg	1280lbs
Safe working load - Main deck Safe working load - Roll out deck extended	460kg 120kg	1015lbs 265lbs
Platform size	2.73 x 1.65m	8' 11" x 5' 5"
Stowed height	2.5m	8' 2"
Stowed height (hand rails folded down)	1.7m	5' 8"
Overall length	3.36m	11' 0"
Overall width	1.7m	5' 8"
Gradeability	35%	
Lift time	26 seconds	
Turning radius (inner)	2.83m	9' 3"
Turning radius (outer)	4.6m	15' 1"
Maximum wind speed (12.5m/s)	45km/h	28mph
Insulation rating	Nil	
Tyres - Poly filled loader lug	27" x 10.5" x 15"	
Overall weight	2800kg	6272lbs
Ground clearance	350mm	13.8"
Maximum sound level at platform	86db	
Stabiliser maximum load	1730kg	3813lb
Maximum chassis inclination	3.5°/4°	
Allowable manual force	400N	

General Specifications

■ Engine Data

ENGINE MAKE	KUBOTA(gasoline)	KUBOTA (LPG)	KUBOTA (diesel)
Model	DF752		D902
Fuel	gasoline	LPG	diesel
Fuel Grade	Unleaded 85 octane (motor method) Do not use gasoline blended with methyl alcohol.	HD5 Gas Processors Association Standard 2140 Category: special dual propane	ASTM Grade 2-D S5000 Tier 4 Compliance: Low Sulpher ASTM Grade 2-D S500 centane no. > 44 (For operating temp. below 32°F (0°C) use "winterized" no. 2-D.)
Coolant	50% water + 50% ethylene glycol		
Maximum Temperature	110°C		
Oil Capacity	3.7 L		
Oil Grade	API: Quality better than CD		
Oil Weight	see chart below		

■ Engine Oil Charts



■ Classification

Group A Type 3

■ AS1418.1 Group Classification

C3

■ Commissioning Information

Commissioning of the machine consists of performing the Pre Delivery and Inspection Report (PDIR) satisfactorily.

This PDIR is performed by Snorkel or it's agent before the machine is delivered.

A completed PDIR can be obtained, by request, from the salesagent.

■ About this Manual:

This Maintenance and Repair Parts manual covers current production machines only.

While Snorkel has attempted in every way to confirm that all information in this manual is correct, improvements are being constantly made to the machine that may not be reflected in this manual.

NOTE:

It is recommended that you record the serial and model number of your machine (see page 19 of this chapter). This information is found on the serial number placard.

■ Manual Organization

The Repair Parts Manual consists of six sections with an individual table of contents preceding sections 1 through 4.

Subassemblies and detailed parts are identified by index numbers on the drawings that correspond to the item numbers on the parts listing. When requesting any part, always specify complete part number, description, model and serial number of your unit.

The following is a general description of each section and its contents.

□ General Specifications

The section immediately preceding, contains information relating to the general specifications of the S3970RT /S3370RT / S2770RT.

□ Maintenance

The pages immediately following, contain information as to the maintenance schedules - lubricants and procedures for proper lubrication of the unit.

□ Control system information

Provides a description of the EzCal LCD Display, a diagnostic tool for the control system.

□ Repair parts and drawings

Repair Parts (Section 1), contains parts listings and drawings for general mechanical repair parts of all major installations and subassemblies of the unit.

□ Hydraulics

(Section 2), contains parts listings and drawings of hydraulic components installations including hydraulic schematics and individual components

such as cylinders, controls valves and solenoid operated valves.

□ Electrical

Electrical (Section 3), contains listings and drawings of electrical components installations including wiring schematics.

□ Options

Options (Section 4), contains parts listings and drawings of optional installations.

■ Maintenance and Schematics

□ Maintenance information

The parts drawings located in the repair parts sections, are designed for use as a guide for proper disassembly of the machine and components as well as for parts replacement. Always refer to the hydraulic system installation drawings and the electrical wiring diagram before removing or disassembling associated parts.

▲ CAUTION

Do not attempt to disconnect or remove any hydraulic line before reading and understanding all text concerning the system hydraulics. In most cases, disassembly of the machine will be obvious from the drawing.

▲ CAUTION

DO NOT modify this ariel platform without prior written consent of Snorkel Engineering Department.

Modification may void the warranty, adversely affect stability, or affect the operational characteristics of the ariel platform.

When disassembling or reassembling components, complete the procedural steps in sequence. Always check your work to assure that nothing has been overlooked.

The following list is a gentle reminder when disassembling or assembling the machine.

- ✓ Always be conscious of weight.
- ✓ Never attempt to lift heavy objects without the aid of a mechanical device.
- ✓ Do not allow heavy objects to rest in an unstable condition.

Maintenance Information

- ✓ Always make sure work platform is in stowed position - blocked or the weight removed by a suitable lifting device before disconnecting the hydraulic hose from the motor/pump unit to the lift cylinder.
- ✓ When raising a portion of the machine, be sure that adequate blocking is properly positioned - Do not depend on lifting device to hold and secure weight.
- ✓ If a part resists removal, check to see if all fasteners, electrical wiring, hydraulic lines, etc., have been removed or that other parts are not interfering.

Parts should be thoroughly inspected before restoring to service at the time of reassembly. Burrs, nicks or scratches may be removed from machined surfaces by honing or polishing with #600 crocus cloth, followed by a thorough cleaning in an approved cleaning solvent, and blown dry with compressed air. Do not alter the contour of any part. If this operation does not restore the part to a serviceable condition, replace the part.

Replace all O-rings, seals, and gaskets at reassembly. Use new roll pins or cotter pins. Dip all packing rings and seals in hydraulic oil before reassembling in cylinder and manifold installations. Replace any part having imperfect threads. In general, units that have been disassembled can be reassembled by reversing the order of disassembly.

Remember that the service life of a machine can be increased by keeping dirt and foreign materials out of the vital components. Precautions have been taken to safeguard against this; shields, covers, seals and filters are provided to keep air and oil supplies clean; however, these items must be maintained on a scheduled basis in order to function properly.

At any time air or oil lines are disconnected, clean surrounding areas as well as the opening and fittings themselves. As soon as a line or component is disconnected, cap or cover all openings to prevent the entry of dirt or foreign materials.

New parts should remain in their container until they are ready to be used.

Clearly mark or tag hydraulic lines and electrical wiring connections when disconnecting or removing them from unit. This will assure that they are correctly reinstalled.

Proper assembly is critical to the successful rebuilding of any unit. Carefully inspect any parts which are to be reused. If in doubt, replace.

“**SAFETY FIRST**” is a good slogan.

Replace any guards and protective devices that have been removed to carry out maintenance and repair work.

■ Maintenance schedules

Snorkel has established a Preventive Maintenance Schedule that includes:

- ✓ Daily Maintenance (Operator's Inspection)
- ✓ 90 Day or 150 Hour (frequent) Maintenance
- ✓ Yearly or 500 Hour (annual) Maintenance,

These schedules should ensure the detection of any defective, damaged or improperly secured parts and provide information regarding lubrication and other minor maintenance items.

The Maintenance Schedule following, outlines the requirements of these maintenance checks for each time interval. The Operator's Pre-operational inspection must be performed by a trained operator. All other maintenance and inspections must be performed by a trained service technician only.

Note that the 90 Day or 150 hour (frequent) and yearly or 500 hour (annual) Maintenance, require use of the Preventive Inspection Maintenance Checklist to pinpoint all inspection items. Retain a copy of these forms for your records.

They also require that all placards and decals on the unit are to be inspected.

All placards and decals must be in place and legible. Use the placards installation drawing and parts listing in the repair parts section 1 of this manual to check these placards and decals.

Snorkel recommends that you make additional copies of the Preventive Inspection Maintenance Checklist forms for your use in performing these

▲ DANGER

Failure to perform the Preventive Maintenance at the intervals outlined in the Maintenance Schedule may result in a unit being operated with a defect that could result in INJURY or DEATH of the unit operator. DO NOT allow a unit to be operated that has been found to be defective.

Repair all defects before returning the unit to service

■ Daily Maintenance

❑ Pre-operational inspection

(Set the KEY SWITCH to off before starting this inspection).

COMPONENTS	SERVICE REQUIRED
Rough terrain scissor interlock tests (see page 15 in this section)	Perform the tests to ensure the system is functioning
Fuel level	Visually inspect
Fuel filter (diesel engines only)	Visually inspect (condition)
Fuel leaks	Visually inspect (hoses, connections, etc)
Engine Oil	Check oil level (between dipstick lines)
Engine coolant	Check fluid level and radiator hoses
Radiator cap	Visually inspect (installation)
Air Filter	Check condition (gauge)
Platform entrance gate	Visually inspect (installation, operation)
Wiring harness and connectors	Visually inspect (installation, condition)
Battery terminals	Visually inspect (installation)
Battery fluid level	Visually inspect (covers plates)
Hydraulic oil reservoir cap	Visually inspect (installation)
Hydraulic oil level	Check fluid level (at line on side of tank)
Hydraulic oil leaks	Visually inspect (hoses, tubes)
Tires and wheels	Visually inspect (condition)
Bolts and fasteners	Visually inspect (looseness)
Structural damage & welds	Visually inspect (weld cracks, dents)
Platform guardrails	Visually inspect (condition)
Lanyard anchor points (option)	Visually inspect (condition)
Bubble level indicator	Visually inspect (condition)
Guides, rollers and slides	Visually inspect (condition)
Non slip tread grip	Visually inspect (condition)
Wrist support	Visually inspect (condition)
Operator manual	Visually inspect (that the manual is in the holder)
Placards, decals and operators manual	Visually inspect (installation and condition)
START THE ENGINE FROM THE BASE CONTROL PANEL TO CHECK THE FOLLOWING	
Charging system	No faults on the display
Ground controls	Actuate and visually inspect for proper operation
Emergency lowering (from the ground)	Check operation (causes correct motion)
Flashing light	Check operation
Safety prop	Check operation
Parking brakes	Check operation
Optional items	Check operation
START THE ENGINE FROM THE PLATFORM TO CHECK THE FOLLOWING	
Platform controls	Actuate and visually inspect for proper operation
Emergency lowering (from the platform)	Check operation

Maintenance Information

■ 90 Day or 150 Hour Maintenance (Trained Service Technician)

COMPONENTS	SERVICE REQUIRED	RECOMMENDED LUBRICANT OR FURTHER INSTRUCTIONS
Daily maintenance	Perform maintenance as per schedule	
Preventive inspection maintenance checklist	Perform inspection, complete form	Retain copy of checklist
Placards & decals inspection	Inspect using drawing and parts listing in section 1 (repair parts)	Replace any missing or unreadable decals/placards
Door hinges and latches	Lubricate	SAE 10W oil or spray lube
Tie rods	Check pin keeper and condition	
Steer cylinder ends	Check pin keeper and condition	
Batteries	Check specific gravity	1.260/1.275 at 80° F.
Platform lift capacity	Check if platform can lift maximum load	
Platform lift/lower speeds	Check smooth operation and speeds	
Hydraulic return filter	Check condition	Replace
Engine RPM	Check for proper RPM	Low = 1950rpm High = 3400rpm
Engine oil and oil filter	Replace per engine manufacturer's interval	See engine manufacturer's owners manual
Engine fuel filter	Check condition	Replace every 6 months or if dirty
Slide pads	Check condition	
Scissor arm bearings	Check condition	

■ Yearly or 500 Hour Maintenance (Trained Service Technician)

COMPONENTS	SERVICE REQUIRED	RECOMMENDED LUBRICANT OR FURTHER INSTRUCTIONS
90 day or 150 hour maintenance	Perform maintenance per schedule	
Hydraulic oil reservoir	Clean and replace fluid	Shell Tellus 32 or similar
Hydraulic return filter	Replace	After 1st. 50 hours, thereafter at recommended interval
Hydraulic pressures	Check pressures	
Platform controller	Check operation	
Base controls	Check operation	

■ Lubrication

Specific lubricants as recommended by Snorkel, should be used in maintaining your unit. If in doubt regarding the use of lubricants other than those listed, contact Snorkel.

□ Pressure gun application

Service all fittings as indicated in the Maintenance Schedule. Wipe away all excess lubricant from exposed surfaces. Over lubrication can collect dirt and foreign matter which acts as an abrasive.

NOTE

Any time the work platform is elevated to perform maintenance work, properly position the safety bar as outlined on the safety prop decal.

▲ DANGER

DO NOT reach through scissors mechanism unless the safety prop is properly positioned.

INJURY or DEATH could occur if the platform is not supported by the safety prop and should suddenly drop onto personnel performing maintenance work under the raised platform.

□ King pins

King pin bearings are self lubricating. Check for signs of damage and excessive wear as outlined in the maintenance schedule.

□ Tie rods

Tie rod bearings are self lubricating. Check for damage and excessive wear as outlined in the maintenance schedule.

□ Steer cylinder end

Steer cylinder ends are self lubricating. Check for damage and excessive wear as outlined in the maintenance schedule.

□ Wheel bearings, drive wheels

Wheel bearings used on drive wheels are sealed bearings and do not require lubrication.

□ Engines

Other than daily Operator's maintenance outlined in the Daily Inspection and Maintenance schedule, all other engine maintenance information is found in the manufacturer's instruction manual.

Refer to the engine manufacturer's instruction manual or consult your local engine service representative if engine adjustments or repairs are needed.

▲ CAUTION

The engine MUST be operated in accordance with manufacturer's instructions and serviced at recommended intervals.

Failure to do so could result in the loss of your engine warranty and repair of any failure resulting from improper maintenance could be at your own expense.

□ Hydraulic oil reservoir

The fluid level should be kept level with the indicator line on the side of the reservoir and should be checked with all cylinders fully retracted and the platform in the stowed position.

The interior of the reservoir should be wiped out and cleaned each time the hydraulic oil is changed. The reservoir filler/breather cap should be removed and the cap breather cleaned yearly with Kerosene, Fuel Oil or other solvent.

It is absolutely necessary that only new, clean hydraulic oil is added.

▲ CAUTION

If it becomes necessary to add or use an oil other than the recommended fluid, it is important that it be compatible and equivalent to the factory fill. Local oil suppliers can generally furnish this information.

If questions still remain, contact Snorkel for further information.

□ Return filter

On these scissorlift models, the hydraulic oil return filter is mounted in the right hand tray assembly close to the hydraulic oil reservoir.

The filter element is a throw-away type filter and should be changed after the initial break-in period (approximately 50 hours operation time).

The filter condition should be checked at the 90 day or 150 hour Preventive Inspection Maintenance interval or more frequently under extreme working conditions.

When changing the filter element, the oil inside of the filter element, should be examined for deposits of metal cuttings, which if present, could indicate

Maintenance Information

excessive wear in some of the system components.

☐ **Door hinges and latches**

Door hinges and latches may be lubricated as required with spray lubrication or SAE 10W oil.

After lubricating, remove any excess oil or over-spray so it will not collect dirt and debris.

☐ **Slide pads**

Check slide pads for excessive wear and replace as required.

☐ **Scissor arm bearings**

Scissor arm bearings are self lubricating. Check bearings for signs of damage and excessive wear as outlined in the maintenance schedule.

☒ **Batteries**

The battery will have longer life if the water level is maintained and it is kept charged. The unit will have better starting characteristics with a fully charged battery.

In cold weather the battery should be maintained at full charge to keep from freezing. An extremely low or dead battery can freeze in cold weather. Make sure connections are clean and tight.

Check specific gravity of the battery per maintenance schedule.

Make sure charging equipment is operating properly.

⚠ DANGER

Lead-acid batteries contain sulfuric acid which will damage eyes or skin on contact. When working around batteries, ALWAYS wear a face shield to avoid acid in eyes.

If acid contacts eyes, flush immediately with clear water and get medical attention.

Wear rubber gloves and protective clothing to keep acid off skin, if acid contacts skin, wash off immediately with clear water.

⚠ DANGER

Lead-acid batteries produce flammable and explosive gases. NEVER allow smoking, flames or sparks around batteries.

■ Rough Terrain Scissor Interlock Tests

The Snorkel S/RT Series are fitted with a very important safety feature, a 'Stabiliser/axle/scissor Interlock' system that prevents the stabilisers being moved while the platform is elevated, and prevents the platform being raised if the rear axle is oscillated and the stabilisers are not set or the machine is tilted.

The correct operation of the Stabiliser/scissor Interlock is critical to ensure that the Scissor is operated safely and with minimum risk.

▲ DANGER

To ensure the interlock system is functioning correctly, before operating the Scissor the following test must be carried out prior to operation each day, in conjunction with all other relevant daily pre-operational checks:

☐ Stabiliser locked out when platform elevated test

1. Position the machine on a firm level surface.
2. From the platform controls, start the engine and allow it to warm up.
3. Raise the platform above the elevation height (approx. 1.5 metres, depending on model).
4. Operate the right front stabiliser extend switch while watching the stabiliser leg for movement
5. If the stabiliser leg moves, release the switch **immediately!**
Lower the platform fully, remove the machine from service and affix a Danger Tag warning others that the machine is not to be used. In the first instance contact the owner who will then contact the Snorkel branch or authorised agent to inspect, repair and test the machine before allowing it to be placed back into service.

If the stabiliser leg does not move, continue to step 6

6. Lower the platform to the stowed position

☐ Elevation locked out when axles not stowed test

7. Park the machine such that one rear wheel is in a depression (approx. 100mm deep) such that the axle switch opens. A kerb or gutter may be sufficient

8. Raise the platform above the elevation height, (approx. 1.5 metres, depending on model).
9. At this point, an alarm will sound and further lift or drive will be disabled.
10. If there is no alarm and/or the machine continues to allow lift **stop immediately!**
Lower the platform fully, remove the machine from service and affix a Danger Tag warning others that the machine is not to be used. In the first instance contact the owner who will then contact the Snorkel branch or authorised agent to inspect, repair and test the machine before allowing it to be placed back into service.
11. Repeat steps 7-10 for the opposite rear wheel.
12. Lower the platform to the stowed position

☐ Elevation locked out when tilted test

13. Park the machine on ground known to exceed the tilt limit specified on the serial plate.
14. Raise the platform above the elevation height, (approx. 1.5 metres, depending on model).
15. At this point, an alarm will sound and further lift or drive will be disabled.
16. If there is no alarm and/or the machine continues to allow lift **stop immediately!**
Lower the platform fully, remove the machine from service and affix a Danger Tag warning others that the machine is not to be used. In the first instance contact the owner who will then contact the Snorkel branch or authorised agent to inspect, repair and test the machine before allowing it to be placed back into service.
17. Lower the platform to the stowed position
18. If all steps have been followed and the Stabiliser/scissor interlock is functioning correctly, the machine can now be used in accordance with the operating instructions provided in the Operators Manual.

Maintenance Information

■ Preventive inspection maintenance 90 day or 150 hour checklist

Model: _____

Serial Number: _____

Date: _____

OK	OK - No Service Required
✓	Corrective Action Required
X	Corrected, (Record description of corrective action).

Inspection Procedures Codes
(1) Weld cracks, dents and/or rust
(2) Installation
(3) Leaks
(4) Operation
(5) Condition
(6) Tightness
(7) Residue buildup
(8) See placards and decals inspection chart

CHECK	OK	✓	X
BASEFRAME			
Structural (1)			
Steering cylinders (2,3,4,6)			
Steering cylinder fasteners and linkage (2,4)			
Tires and wheels (5)			
Articulating axles, if so equipped (2,4,5)			
Tray side covers (2,5,6)			
Torque drive wheel lug nuts 90 - 100 ft. lbs. (2,6)			
Torque steer wheel lug nuts 90 - 100 ft. lbs. (2,6)			
Right drive motor(s) (3,6)			
Left drive motor(s) (3,6)			
Drive cut-out			
Back-up horn (4)			
Guides, rollers and slides (2,4,5)			
Parking brake(s) (3,4)			
Free wheeling valve (3,4)			
Emergency lowering valve (3,4)			
Lowering alarm (4)			
Battery disconnect switch (4)			
Lubrication points			
Cords and wire assemblies (2,5,6)			
Hydraulic tubes and hoses (3,5)			
Decals and placards (2,8)			
OUTRIGGERS AND CONTROLS			
Right front outrigger (2,3,4)			
Left front outrigger (2,3,4)			
Right rear outrigger (2,3,4)			
Left rear outrigger (2,3,4)			
Platform elevated, outrigger controls DO NOT WORK (4)			
Outriggers lowered, platform elevated DRIVE WILL NOT WORK (4)			
SCISSOR ARM ASSEMBLY			
Structural (1)			
Scissor arm pivot pins (2,5)			
Lift cylinders and valves (2,3,4)			
Safety bar (2,4,5)			
Hydraulic tubes and hoses (3,5)			
Wires and electrical cables (2,5)			
Decals and placards (2,8)			

[illegible]

[illegible][illegible]

All items have been properly checked and tested and found to be operating satisfactory or necessary corrective action has been completed.

page 17

Maintenance Information

■ Torque chart

NOM SIZE X PITCH	TENSILE STRESS AREA A _s (mm ²)	PROPERTY CLASS 8.8			PROPERTY CLASS 10.9		
		CLAMP LOAD W (N)	TORQUE (N.m)		CLAMP LOAD W (N)	TORQUE (N.m)	
			DRY k=0.20	LUBED k=0.15		DRY k=0.20	LUBED k=0.15
M3 x 0.5	5.03	2 200	1.32	0.99	2 990	1.79	1.34
M3.5 x 0.6	6.78	2 960	2.07	1.55	4 030	2.82	2.11
M4 x 0.7	8.78	3 830	3.07	2.30	5 220	4.17	3.13
M5 x 0.8	14.2	6 200	6.20	4.65	8 430	8.43	6.33
M6 x 1	20.1	8 770	10.5	7.90	11 950	14.3	10.8
M8 x 1.25	36.6	15 975	25.6	19.2	21 750	34.8	26.1
M8 x 1	39.2	17 100	27.4	20.5	23 275	37.3	27.9
M10 x 1.5	58.0	25 325	51	38.0	34 450	69	52
M10 x 1.25	61.2	26 725	53	40.1	36 350	73	55
M12 x 1.75	84.3	36 800	88	66	50 075	120	90
M12 x 1.25	92.1	40 200	96	72	54 700	130	98
M14 x 2	115	50 200	140	105	68 300	190	145
M14 x 1.5	125	54 550	155	115	74 250	210	155
M16 x 2	157	68 525	220	165	93 250	300	225
M16 x 1.5	167	72 900	235	175	99 200	320	240
M20 x 2.5	245	106 950	430	320	145 550	580	435
M20 x 1.5	272	118 750	475	355	161 550	650	485
M24 x 3	353	154 100	740	555	209 700	1 010	755
M24 x 2	384	167 600	805	605	228 100	1 100	820
M27 x 3	459	200 350	1 080	810	272 650	1 470	1 100
M27 x 2	496	216 500	1 170	875	294 600	1 590	1 150
M30 x 3.5	561	244 900	1 470	1 100	333 250	2 000	1 500
M30 x 3	580	253 150	1 520	1 140	344 500	2 070	1 550
M30 x 2	621	271 050	1 630	1 220	368 850	2 210	1 660
M33 x 3.5	694	302 950	2 000	1 500	412 250	2 720	2 040
M33 x 2	761	332 200	2 200	1 640	452 050	2 980	2 240
M36 x 4	817	356 600	2 570	1 930	485 300	3 490	2 620
M36 x 3	865	377 600	2 720	2 040	513 800	3 700	2 780
M39 x 4	976	426 000	3 320	2 490	579 750	4 520	3 390
M39 x 3	1 028	448 700	3 500	2 630	610 650	4 760	3 570
M42 x 4.5	1 121	489 300	4 110	3 080	665 850	5 590	4 200
M42 x 3	1 206	526 400	4 420	3 320	716 350	6 020	4 510
M45 x 4.5	1 306	570 050	5 130	3 850	775 750	6 980	5 240
M45 x 3	1 398	610 250	5 490	4 120	830 400	7 470	5 610
M48 x 5	1 473	642 950	6 170	4 630	874 950	8 400	6 300
M48 x 3	1 604	700 150	6 720	5 040	952 800	9 150	6 860
Grade marking   							

■ To order service or repair parts

When placing an order for service or repair parts, please have the following information available for your machine.

- ✓ Machine model number
- ✓ Machine serial number
- ✓ Snorkel part number
- ✓ Description of part
- ✓ Quantity of parts required
- ✓ Your purchase order number
- ✓ Address for order to "Ship To"
- ✓ Your desired shipment method

All correspondence relative to this unit, such as field reports, discrepancy reports, requests for service information, etc., should be directed to:

Snorkel New Zealand
36 Bruce Road
P.O. Box 1041
Levin 5510
New Zealand

Phone: +64 06 368-9168

Fax: +64 06 368-9164

Attention: Parts Department

■ Manuals

Manuals are available from Snorkel to support any of the machines that we produce.

The specific manuals for S3970RT - S3370RT - S2770RT are as follows:

- ✓ Operator's Manual
Snorkel part number - 13865-1
- ✓ Repair Parts Manual
Snorkel part number - 13865-2

■ Product Warranty

For full terms of your warranty policy refer to the rear of this manual after the Index section, or check with your Snorkel distributor, or check the Snorkel website.

■ Responsibilities

It is the sole responsibility of owners and users of Elevating Work Platforms to ensure that all persons owning or using an MEWP have read, understood, and abide by all local regulations. Ultimately, compliance to those local regulations is the responsibility of the user and their employer.

Local regulations may take the form of (but are not limited to): Codes of Practice, Best Practice Guides, Standards e.g. AS2550.10, ANSI manual of responsibilities for Dealers, Owners, Users, Operators, Lessors and lessees etc.

Record machine information here:

Model number*

Serial number*

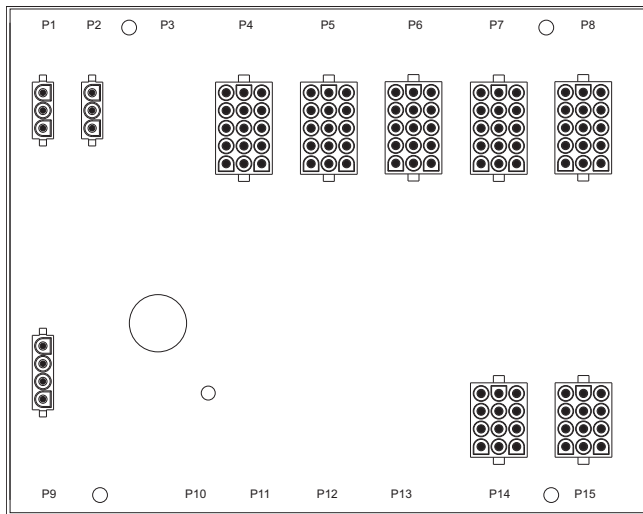
Date of purchase

Purchased from

Snorkel dealer or distributor

* This information is found on the serial number placard attached to your machine.

■ Scissor Lift Control System



GP400C Control Board



EZcal

The EzCal LCD Display is a diagnostic tool for the control system. It is intended to be used primarily by trained technicians. The EzCal LCD display gives some information for the machine operator.

□ Work time

The EzCal default state is to display machine work time. It accumulates time when ever the control system is active. This can be re set by a qualified technician. This value can be used to tell when periodic maintenance is due.

□ Water

If the engine becomes too hot the EzCal LCD display will show **“Shut down - Engine Too Hot”**

□ Alternator

If the alternator is not providing sufficient charge the EzCal LCD display will show **“Shut down - Not Charging”**

□ Oil Pressure

If the engine does not have sufficient oil pressure the EzCal LCD display will show **“Shut down - No Oil Pressure”**

□ Other messages

Other general messages may be displayed at the time a machine state is not allowed e.g. Functions Locked – Outriggers.

This is a guide to the operator to understand why the machine is not doing what is desired. The messages encompass many possible issues.

In the above case it could mean that the outriggers can not be used because the platform is raised, or it could mean that platform can not be raised because the outriggers are not properly set.

■ GP400 Menus Available with EZcal

When the EZcal LCD is in Technician Mode, a two line display shows various menus and settings.

At any time the top line of the display describes the currently selected menu and the bottom line shows the currently selected item in that menu.

Six buttons on EZcal allow easy navigation through the menus:

← and → change the selected item (the bottom line display)

ENTER enters the selected new menu when available (top line display changes)

↑ and ↓ adjusts the selected item when available (at “ACCESS LEVEL” 1)

ESC exits the current menu back to the previous menu

To enter Technician Mode press and hold the **ESC** key for 10 seconds with the ignition on. The display will change from showing work time to:

□ Help Menu:

Press enter for help.

Refer to the menu structure to navigate the menus.

Control System Information

The default access level is 3.

In this level only viewing of data is allowed.

STOP: If you are not a trained technician do not use Technician Mode in Access level 1 or 2. Death or serious injury can result from unauthorized adjustments and setups.

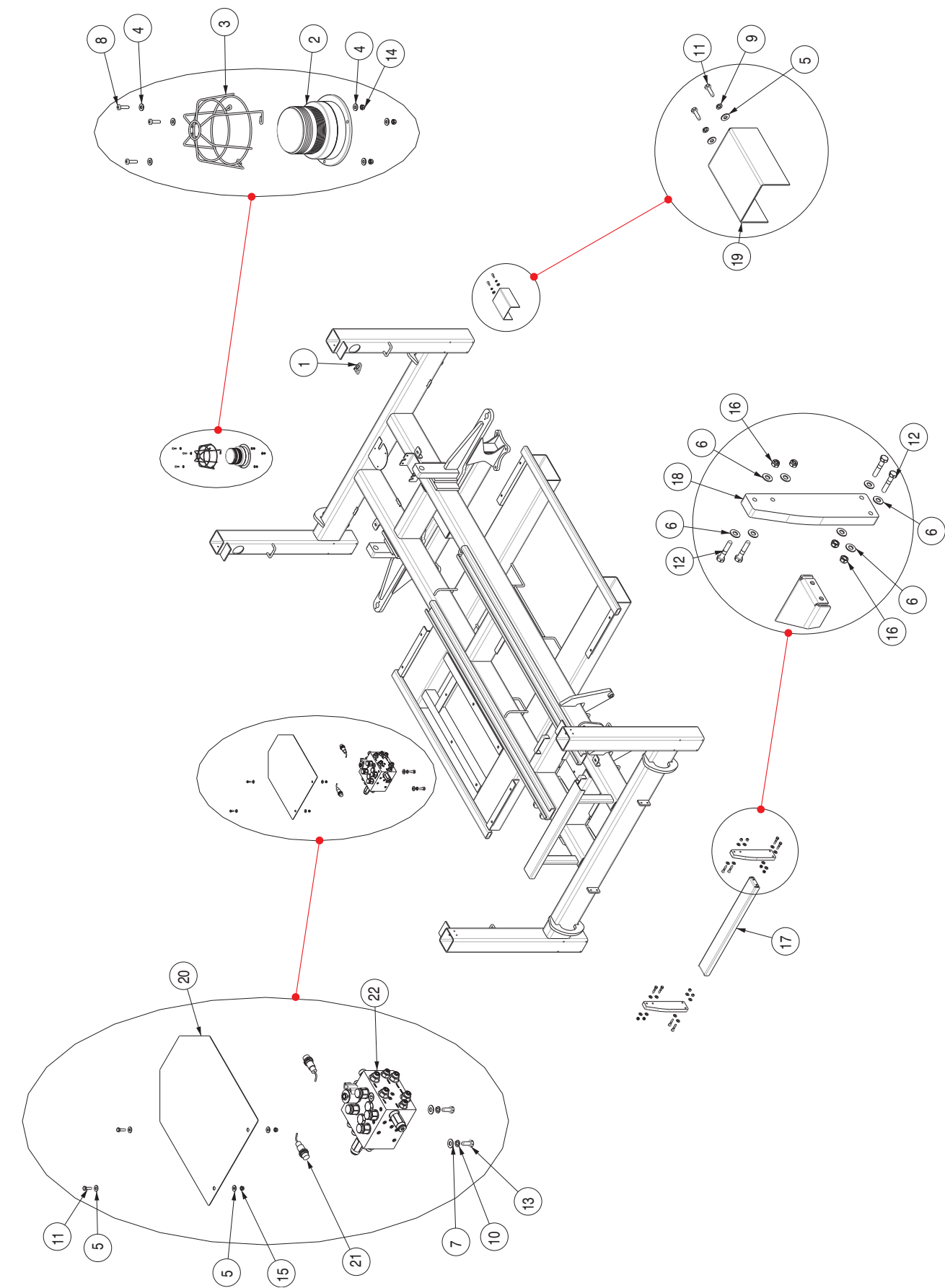
Access level 2 is required to make adjustments to values and to make calibrations.

Access level 1 is required to make adjustments to values, calibrations, and change setups.

Access Codes to change between Access Levels prevent inadvertent adjustments.

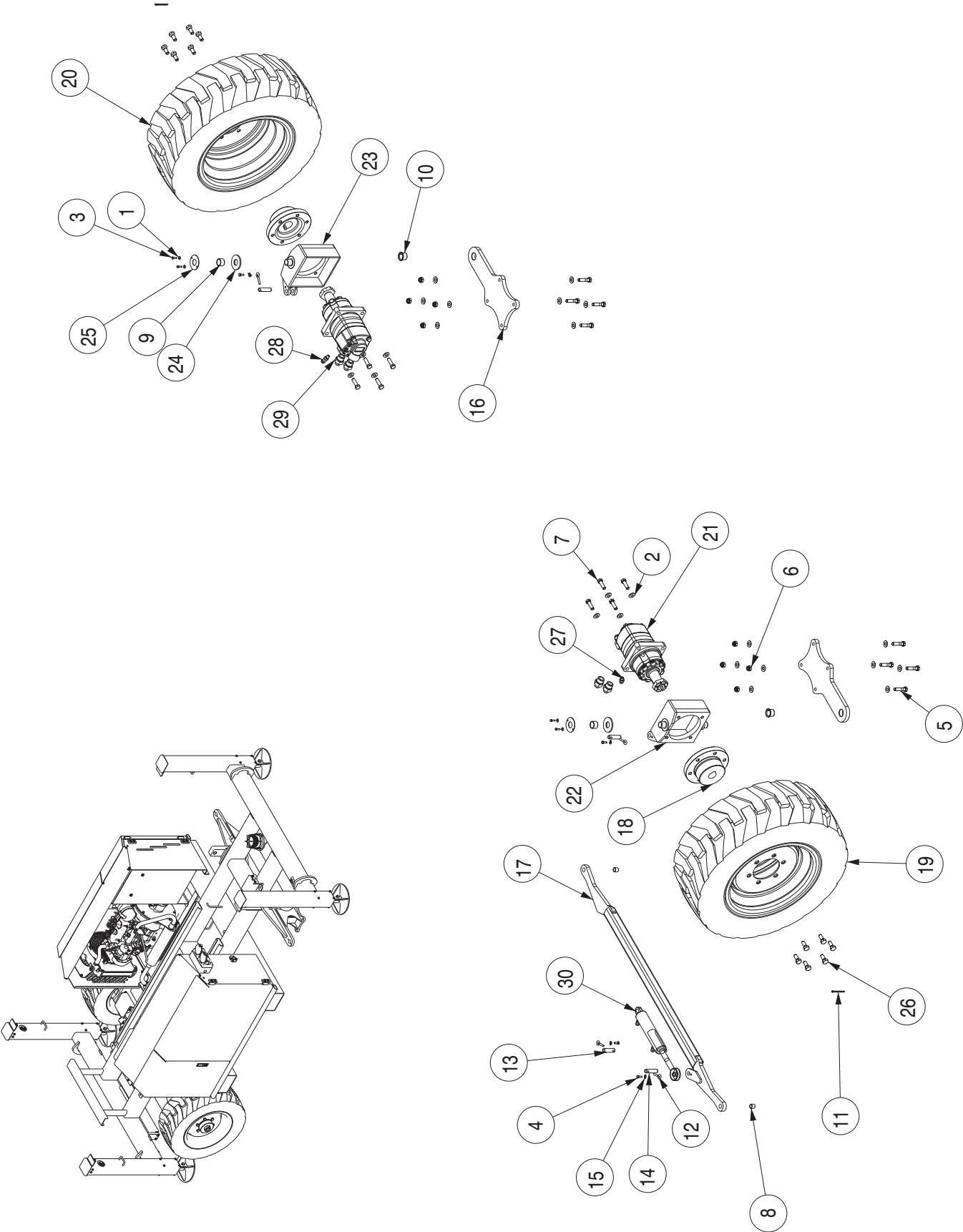
Chassis Assembly Drawing	1-2
Chassis assembly	1-3
Steer assembly drawing	1-4
Steer assembly	1-5
Swing arms assembly drawing	1-6
Swing arms assembly	1-7
Hydraulic cabinet drawing	1-8
Hydraulic cabinet	1-9
Engine cabinet assembly drawing	1-10
Engine cabinet assembly	1-11
Cabinets drawing	1-12
Cabinets	1-13
Stabiliser drawing	1-14
Stabiliser	1-15
Base, stack, platform drawing	1-16
Base, stack, platform	1-17
Platform drawing	1-18
Platform	1-19
Platform drawing	1-20
Platform	1-21
Platform rear handrail drawing	1-22
Platform rear handrail	1-23
Emergency lower S3970RT, S3370RT	1-24
Emergency lower S2770RT	1-25
Scissor stack tees S3970RT, & S3370RT	1-26
Scissor stack assembly drawing, S3970RT	1-28
Scissor stack assembly S3970RT	1-29
Scissor stack assembly drawing, S3370RT	1-30
Scissor stack assembly S3370RT	1-31
Scissor stack assembly drawing, S2770RT	1-32
Scissor stack assembly S2770RT	1-33
Engine assembly drawing, Kubota D902	1-34
Engine assembly, Kubota D902	1-35
Fuel tank assembly, diesel fuel	1-36
Hydraulic oil tank assembly	1-37
Hydraulic oil tank assembly drawing	1-38
Placards and decals drawing	1-40
Placards and decals installation	1-41

Chassis Assembly Drawing



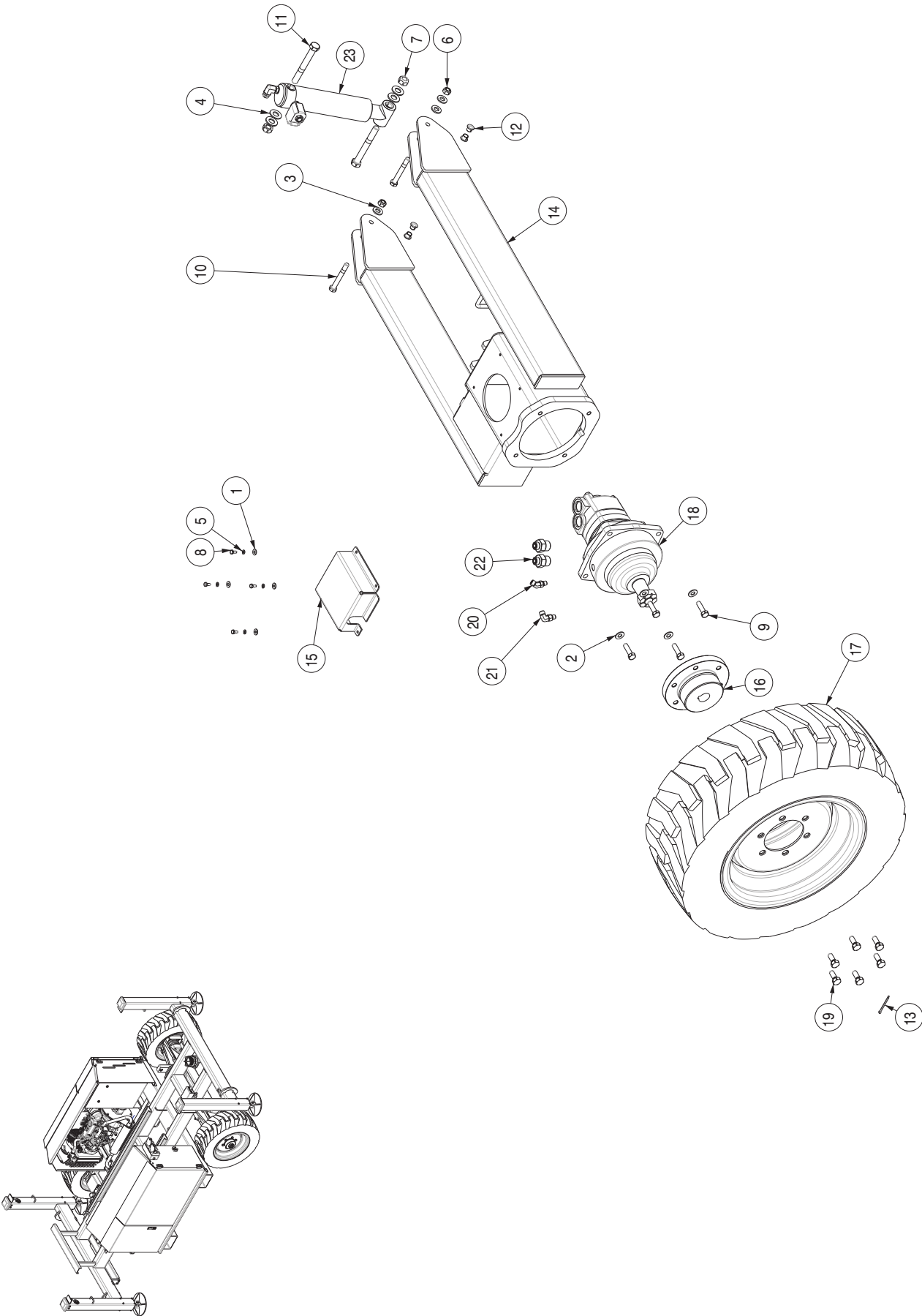
Item	Part No	Qty	Description
1.	1273-2	1	Level Bubble, T Shaped
2.	1866-003	1	Flashing Light
3.	1866-004	1	Flashing Light Guard
4.	3603-05	6	Plain Washer
5.	3603-06	6	Plain Washer
6.	3603-08	16	Plain Washer
7.	3603-10	2	Plain Washer
8.	3604-05020	3	Machine Screw
9.	3605-06	2	Spring Washer
10.	3605-10	2	Spring Washer
11.	3610-06020	4	Metric Bolt
12.	3610-08040	8	Metric Bolt
13.	3610-10025	2	Metric Bolt
14.	3611-05	3	Metric Nyloc Nut
15.	3611-06	2	Metric Nyloc Nut
16.	3611-08	8	Metric Nyloc Nut
17.	12554-5	1	Step Foldment
18.	12554-6	2	Rubber Step Hanger
19.	12818	1	Bleed down Cover
20.	13870	1	Cover - 4wd Manifold, SR V4
21.	50572-000	2	Inductive Prox NO
22.	13780A	1	Manifold Assy - 4WD SR V4

Steer assembly drawing



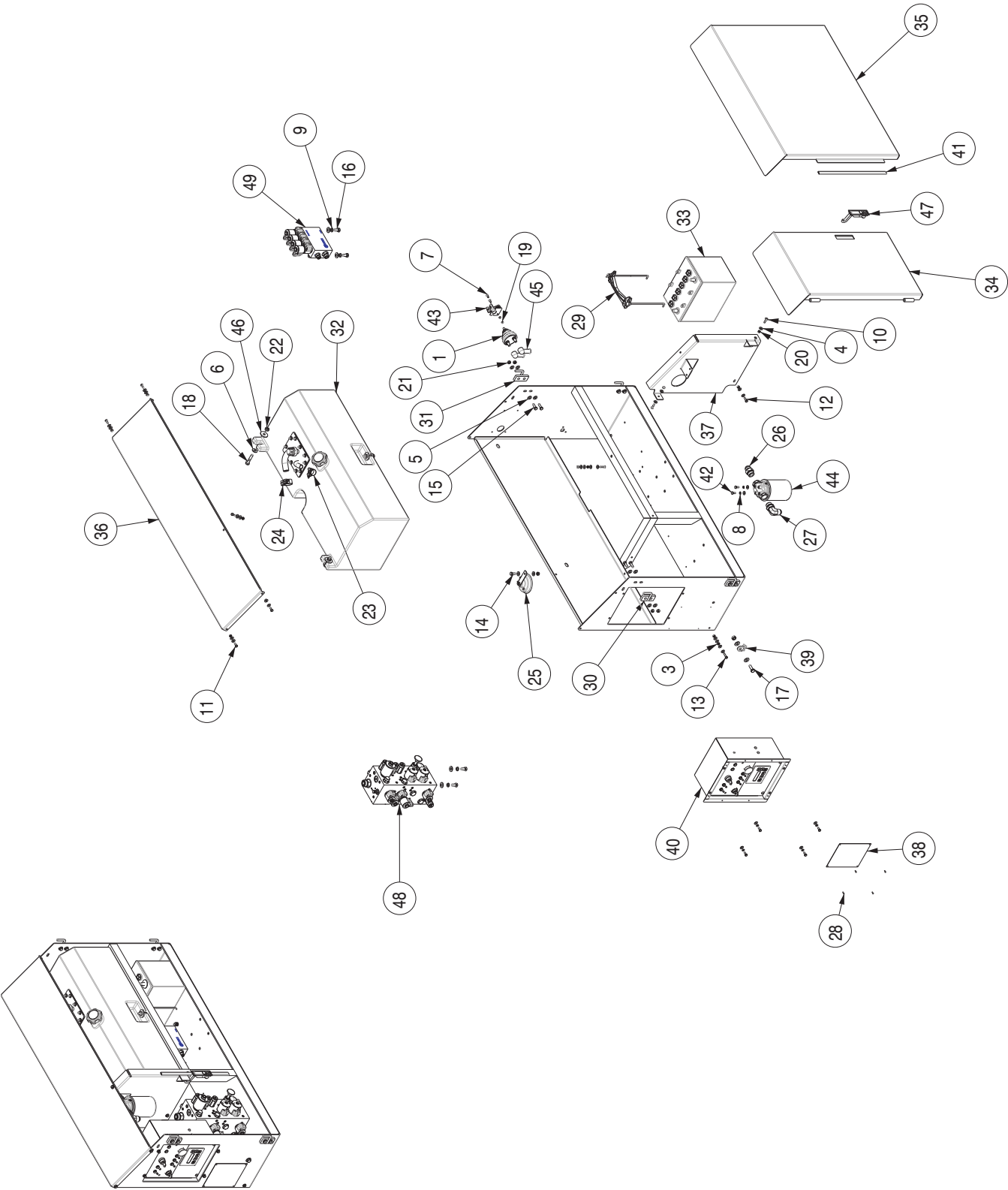
Item	Part No.	Qty	Description
1.	3603-05	4	Plain Washer
2.	3603-12	24	Plain Washer
3.	3610-05016	4	Metric Bolt
4.	3610-06016	4	Metric Bolt
5.	3610-12050	8	Metric Bolt
6.	3611-12	8	Metric Nyloc Nut
7.	3616-12040	8	Metric Bolt Grade 10.9
8.	3624-27	2	Permaglide Bush
9.	3624-3	2	Permaglide Bush
10.	3626-1	2	Flanged Permaglide Bush
11.	3636-1	2	Split Pin
12.	8628	4	Pin Keeper - Rolled Eye 6mm
13.	9311	1	PIN 5/8" x 53 lg
14.	9319	3	PIN: 15 x 56 lg
15.	11492-1	4	Tab Washer
16.	12555-9	2	Steer Axle Lower Plate
17.	12556	1	Steering Tie Rod
18.	12562	2	Hub Adapter (Front)
19.	12563	1	27x10.5-15 Wheel/Tyre Assy RH
20.	12564	1	27x10.5-15 Wheel/Tyre Assy LH
21.	12570	2	Wheel Motor
22.	13854	1	Steer Hub - RH, SR V4
23.	13855	1	Steer Hub - LH, SR V4
24.	13856	2	Thrust Washer - Steering
25.	13857	2	Bearing Retainer
26.	98300-9	12	Countersunk Wheel Bolt
27.	100432-002	1	Hyd Fitting - Straight ORFS(04) - SAE(04)
28.	100433-001	1	Hyd Fitting - 45 Elbow ORFS(04) - SAE(04)
29.	512975-000	4	Hyd Fitting - Straight ORFS(08) - SAE(12)
30.	11699A	1	Steering Cylinder Assembly

Swing arms assembly drawing



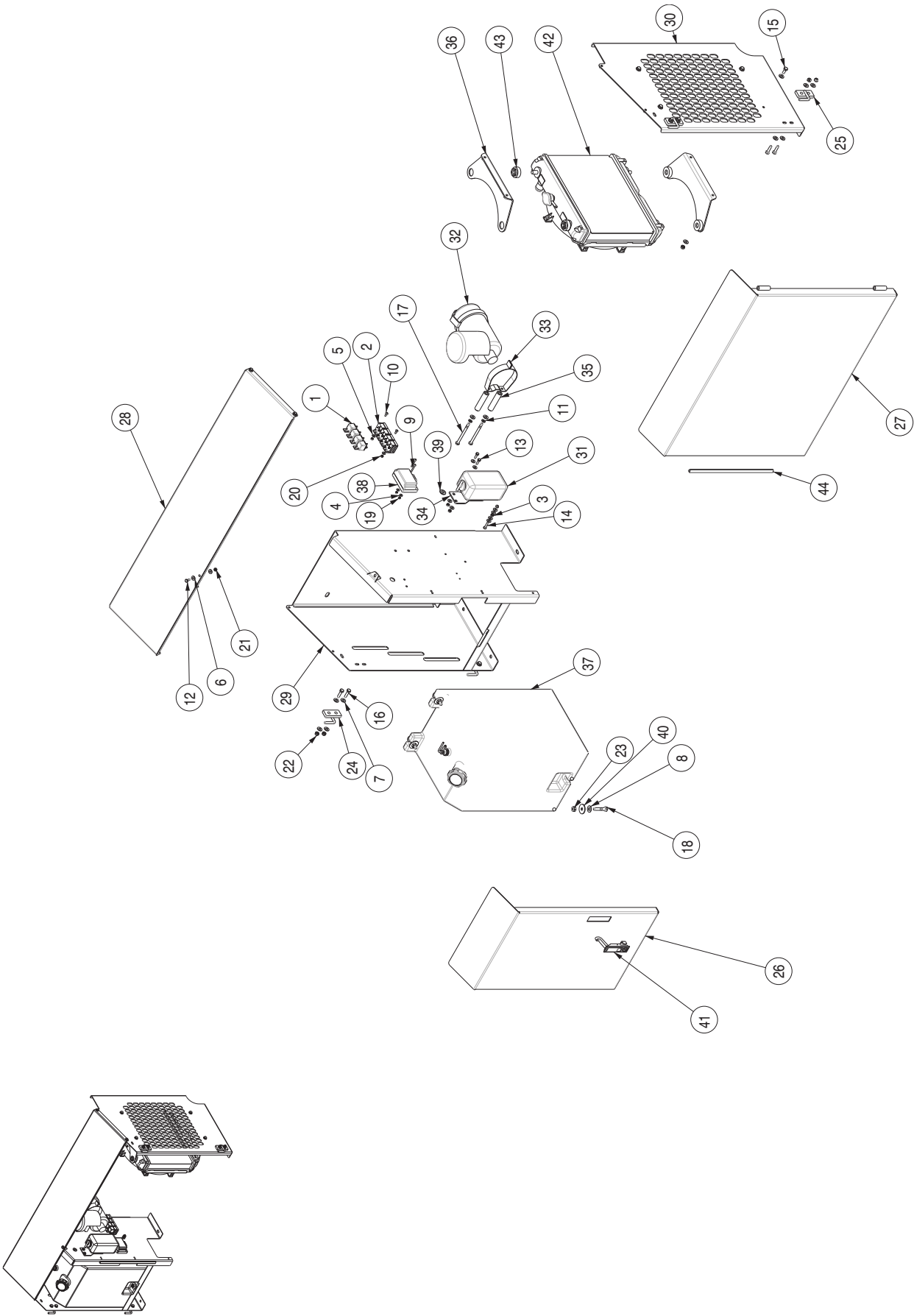
Item	Part No.	Qty	Description
1.	3603-06	4	Plain Washer
2.	3603-12	4	Plain Washer
3.	3603-12HD	3	Plain Washer
4.	3603-16HD	4	Plain Washer
5.	3605-06	4	Spring Washer
6.	3608-12C	2	Cone Lock Nut
7.	3608-16C	2	Cone Lock Nut
8.	3610-06012	4	Metric Bolt
9.	3616-12040	4	Metric Bolt Grade 10.9
10.	3610-12100	2	Metric Bolt Grade 10.9
11.	3610-16140	2	Metric Bolt Grade 10.9
12.	3626-2	4	Flanged Permaglide Bush
13.	3636-1	1	Split Pin
14.	12557	1	Swing Arm, SRxx70
15.	12557-10	1	Motor Cover
16.	12561	1	Hub Adapter (Rear)
17.	12563	1	27x10.5-15 Wheel/Tyre Assy RH
18.	12571	1	Wheel Motor - Braked
19.	98300-9	6	Countersunk Wheel Bolt
20.	100433-001	1	Hyd Fitting - 45 Elbow ORFS(04) - SAE(04)
21.	100434-002	1	Hyd Fitting - 90 Elbow ORFS(04) - SAE(04)
22.	512975-000	2	Hyd Fitting - Straight ORFS(08) - SAE(12)
23.	11642A	1	Axle Cylinder Assembly

Hydraulic cabinet drawing

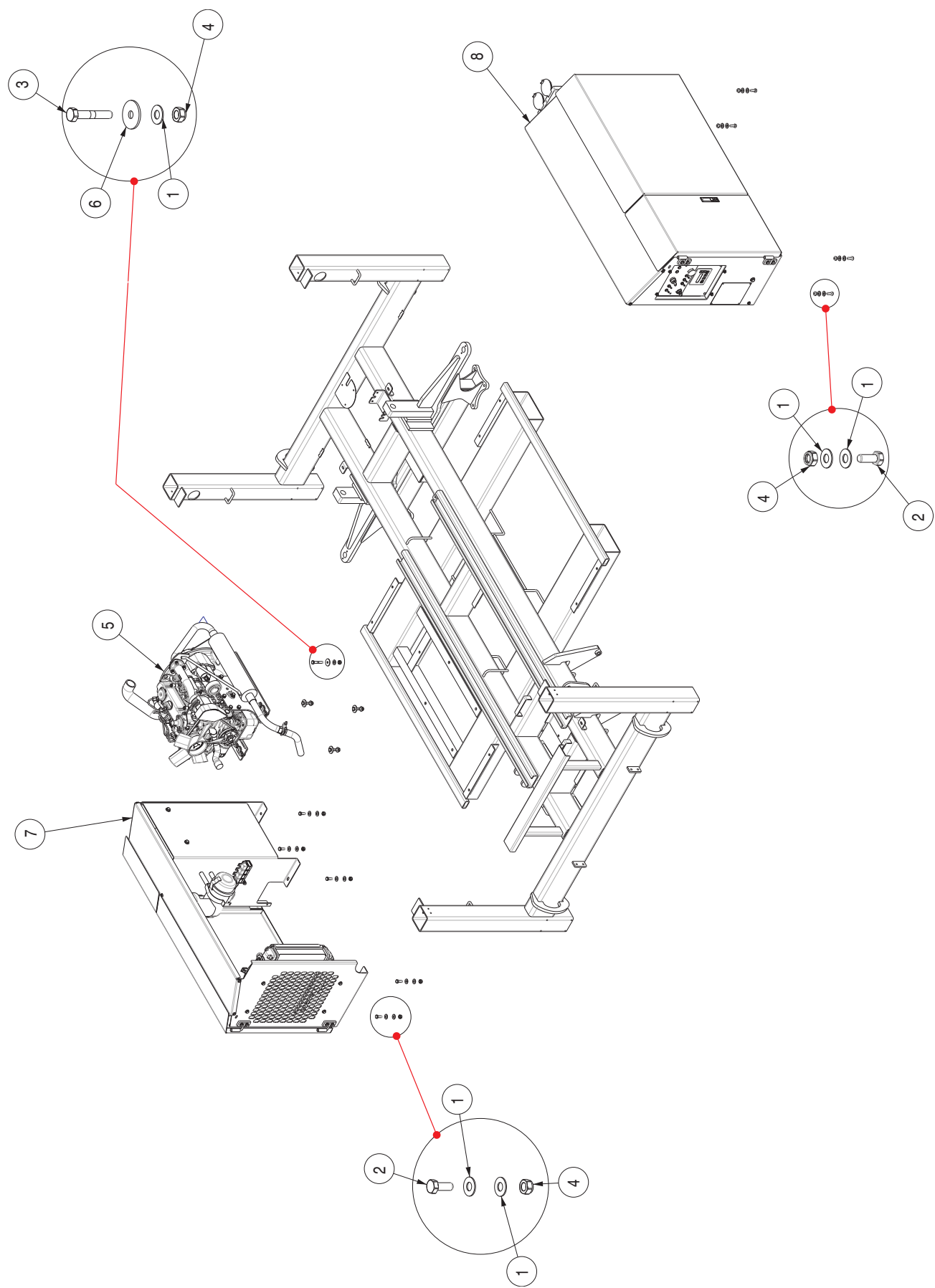


Item	Part No	Qty	Description
1.	302-0049	1	Switch Battery Disconnect
3.	3602-06	2	Metric Hex Nut
4.	3603-06	29	Plain Washer
5.	3603-08	18	Plain Washer
6.	3603-10	9	Plain Washer
7.	3604-05012	2	Pan Head Screw M5 x 12
8.	3605-06	6	Spring Washer
9.	3605-10	4	Spring Washer
10.	3606-06025	1	Countersunk Socket Head Screw
11.	3610-06016	9	Metric Bolt
12.	3610-06020	2	Metric Bolt
13.	3610-06025	2	Metric Bolt
14.	3610-08020	1	Metric Bolt
15.	3610-08025	8	Metric Bolt
16.	3610-10020	4	Metric Bolt
17.	3610-10030	1	Metric Bolt
18.	3610-10050	3	Metric Bolt
19.	3611-05	2	Metric Nyloc Nut
20.	3611-06	10	Metric Nyloc Nut
21.	3611-08	9	Metric Nyloc Nut
22.	3611-10	4	Metric Nyloc Nut
23.	3618-26	1	Hose Clamp 26-28mm ZP (Pass.)
24.	3618-32	1	Hose Clamp 34-37mm ZP (Pass.)
25.	4381	1	Horn
26.	100432-027	1	JICM x UNO Ring Nipple
27.	100432-021	1	JICM x UNO Ring M Elbow
28.	8974	4	Screw, Hammer Drive
29.	10268-1	1	Battery Bracket
30.	13869-01	2	LH Hinge
31.	13869-02	2	RH Hinge
32.	11558	1	Hydraulic Tank Assembly
33.	11596	1	Battery 12v
34.	11679	1	LH Door Weld Small
35.	11680	1	RH Door Weld Large
36.	12716-13	1	Top Plate Engine+Control Cabinets
37.	12716-14	1	Cabinet Support
38.	12833-8	1	Name Plate
39.	13164	1	Cable Tie Mount - M10
40.	13811	1	Lower Control Box Assembly
41.	13872	1	Rubber Channel Section
42.	60015-012	2	3/4" x 1/4" NC Bolt (Plated)
43.	300840	1	Lock Out Lever Asm
44.	301440	1	Oil Filter
45.	3040269	2	Boot Cable Entry Black 1/0 GA
46.	5560179	3	Flat Washer-Special
47.	8342416	1	Latch - Adjustable Trigger
48.	13779A	1	Manifold Assy - Main SR V4
49.	13781A	1	Manifold Assy - Stabilisers SR V4

Engine cabinet assembly drawing

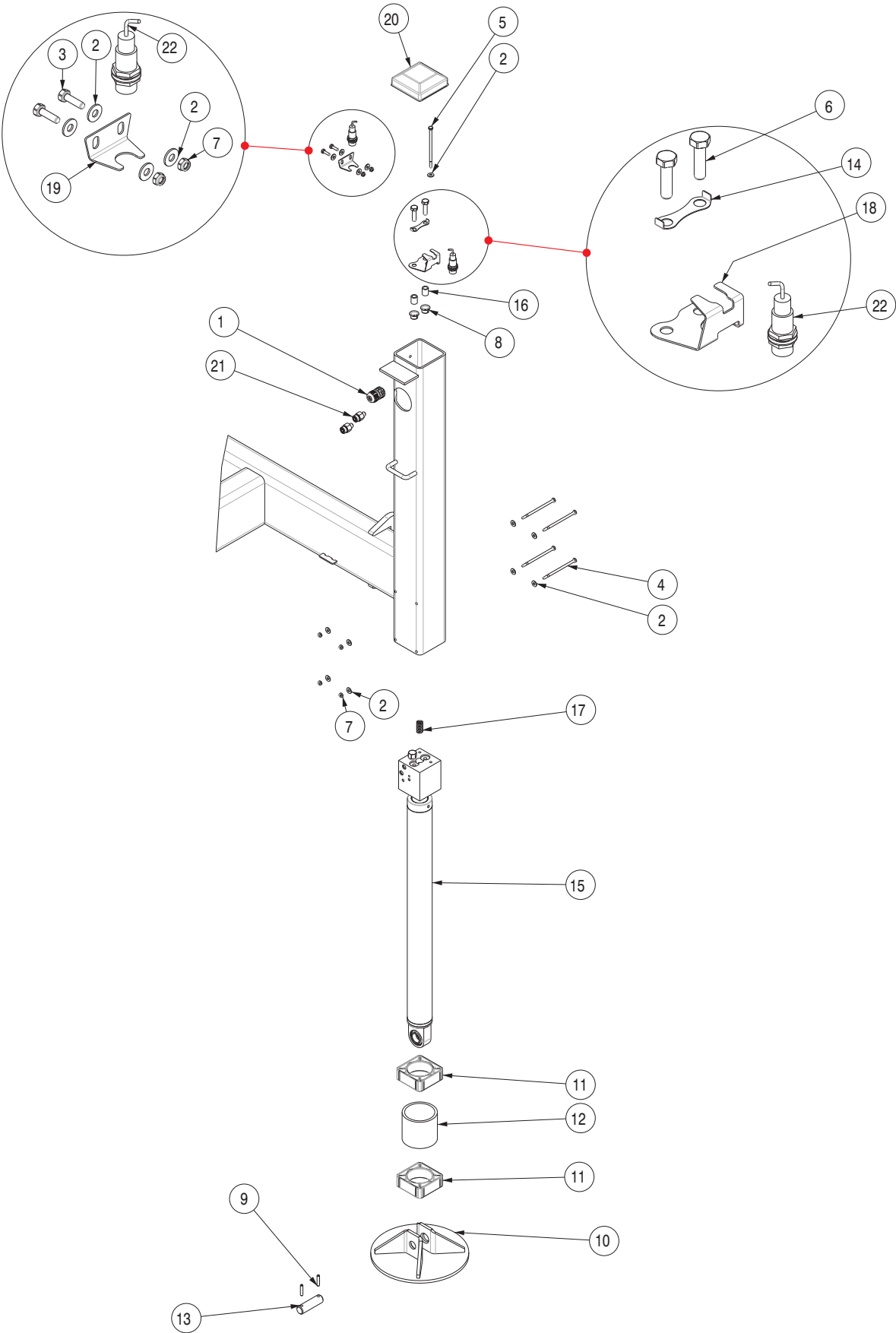


Item	Part No	Qty	Description
1.	1650-010	4	Relay 12v
2.	2065-002	4	Plugin Relay Base
3.	3602-06	1	Metric Hex Nut
4.	3603-04	2	Plain Washer
5.	3603-05	2	Plain Washer
6.	3603-06	18	Plain Washer
7.	3603-08	26	Plain Washer
8.	3603-10	3	Plain Washer
9.	3604-04035	2	Pan Head Screw M4 x 35
10.	3604-05012	2	Pan Head Screw M5 x 12
11.	3605-08	2	Spring Washer
12.	3610-06016	5	Metric Bolt
13.	3610-06020	2	Metric Bolt
14.	3610-06025	1	Metric Bolt
15.	3610-08020	4	Metric Bolt
16.	3610-08030	8	Metric Bolt
17.	3610-08100	2	Metric Bolt
18.	3610-10050	3	Metric Bolt
19.	3611-04	2	Metric Nyloc Nut
20.	3611-05	2	Metric Nyloc Nut
21.	3611-06	8	Metric Nyloc Nut
22.	3611-08	12	Metric Nyloc Nut
23.	3611-10	3	Metric Nyloc Nut
24.	13869-01	2	LH Hinge
25.	13869-02	2	RH Hinge
26.	11679	1	LH Door Weld Small
27.	11680	1	RH Door Weld Large
28.	12716-13	1	Top Plate Engine+Control Cabinets
29.	12938	1	Engine Cabinet - Tank Side
30.	12938-1	1	Cabinet End - Radiator Vent
31.	13086-03	1	Radiator Overflow Bottle
32.	13086-04	1	Air Filter Assembly
33.	13086-05	1	Air Filter Brkt
34.	13086-06	1	Overflow attachment brkt
35.	13098	2	Air Filter Support
36.	13099-1	2	Radiator Mount - SRxx70 D902
37.	13106-2A	1	Fuel Tank Assy - SR
38.	13806	1	Fuse Block - Blade x 6
39.	65004-008	1	Rubber Grommet
40.	5560179	3	Flat Washer-Special
41.	8342416	1	Latch - Adjustable Trigger
42.	***	1	Radiator
43.	***	4	Isolator Mount - Kubota
44.	PCA015	1	Rubber Channel Section
	***		Part of engine kit



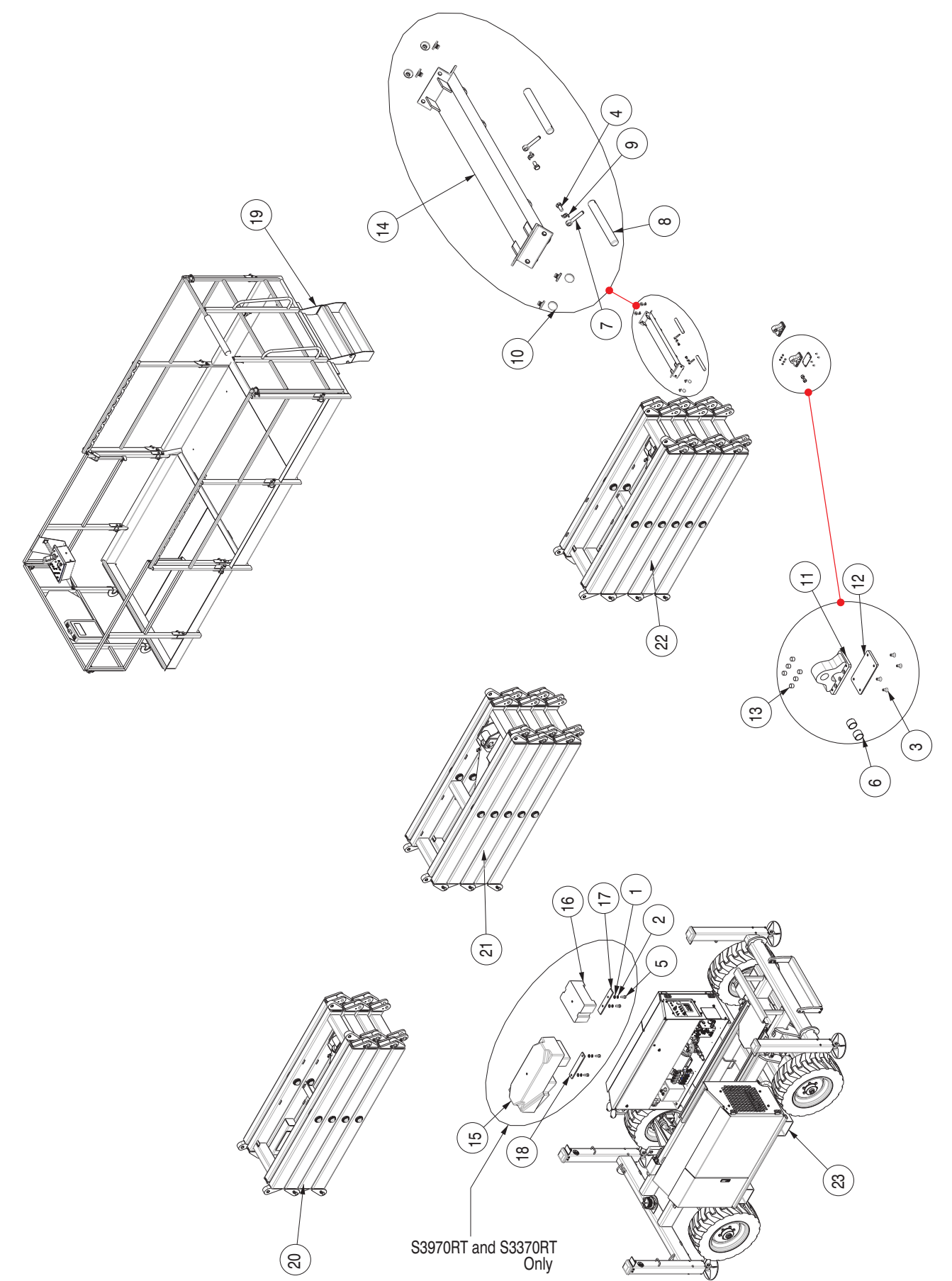
Item	Part No	Qty	Description
1.	3603-10	22	Plain Washer
2.	3610-10025	9	Metric Bolt
3.	3610-10055	4	Metric Bolt
4.	3611-10	13	Metric Nyloc Nut
5.	12937	1	Kubota D902 Assembly
6.	5560179	4	Flat Washer-Special
7.	12938A	1	Engine Cabinet Assembly
8.	13864A	1	Control Cabinet Assembly

Stabiliser drawing

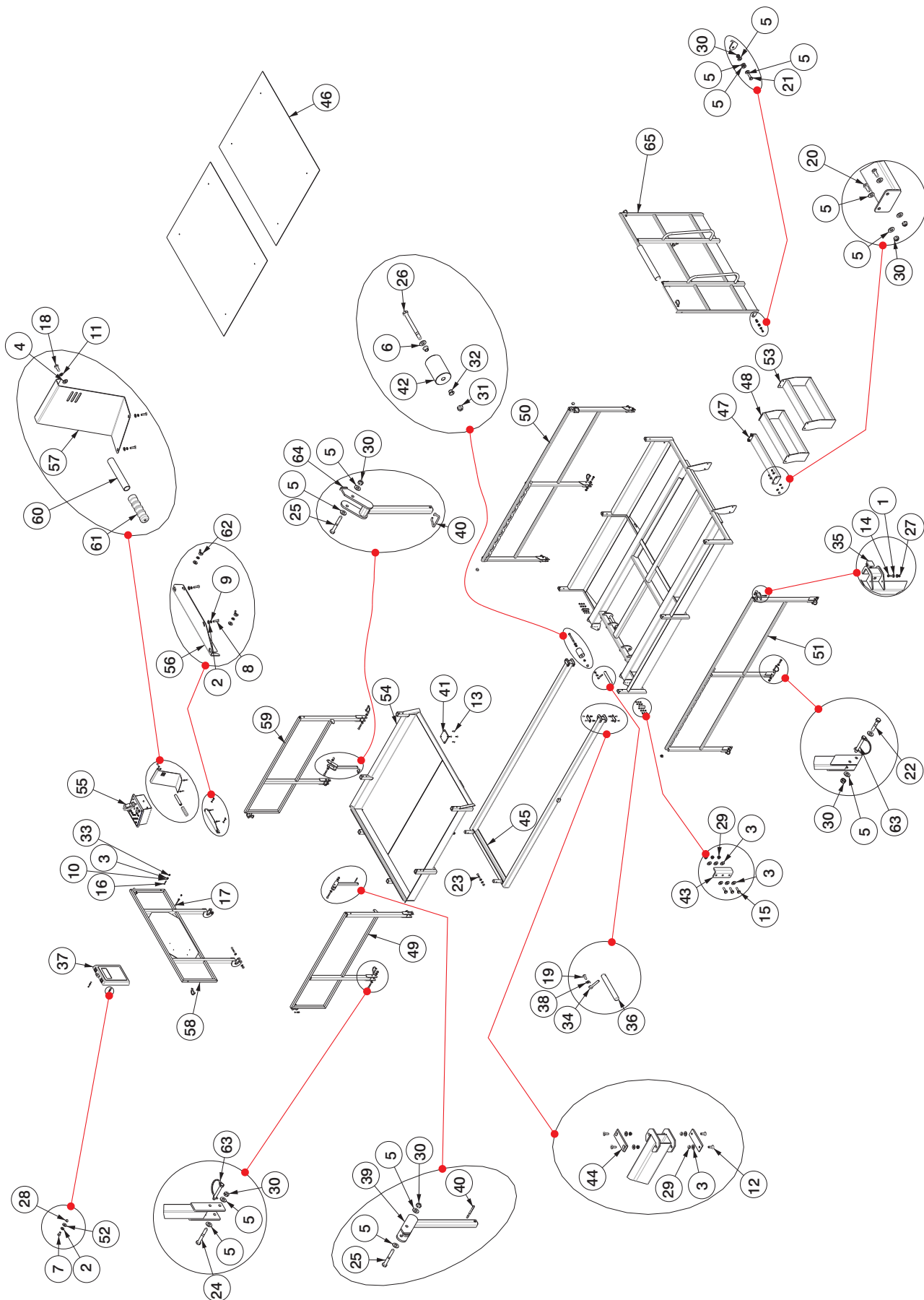


Item	Part No	Qty	Description
1.	1814	1	Cable Gland
2.	3603-06	13	Plain Washer
3.	3610-06020	2	Metric Bolt
4.	3610-06110	4	Metric Bolt
5.	3610-06120	1	Metric Bolt
6.	3610-10035	2	Metric Bolt
7.	3611-06	6	Metric Nyloc Nut
8.	3626-8	2	Flanged Permaglride Bush
9.	3633-3	2	Roll Pin
10.	11305	1	Foot Weld
11.	11366-1	2	Stabiliser Bush
12.	11366-2	1	Stabiliser Bush Spacer
13.	11369	1	Pin
14.	11492-4	1	Lock Tab
15.	12036	1	Cylinder - Stabiliser SR
16.	12036-5	2	Sliding Spacer
17.	12036-6	1	Compression Spring
18.	13771-40	1	Prox Bracket, Leg Stowed, SR
19.	13771-45	1	Prox Bracket, Leg On Ground, SR
20.	13771-50	1	RHS Cap - 100 x 100 Steel
21.	100432-007	2	Hyd Fitting - Straight ORFS(06)-SAE(04)
22.	505072-000	2	Inductive Prox NO

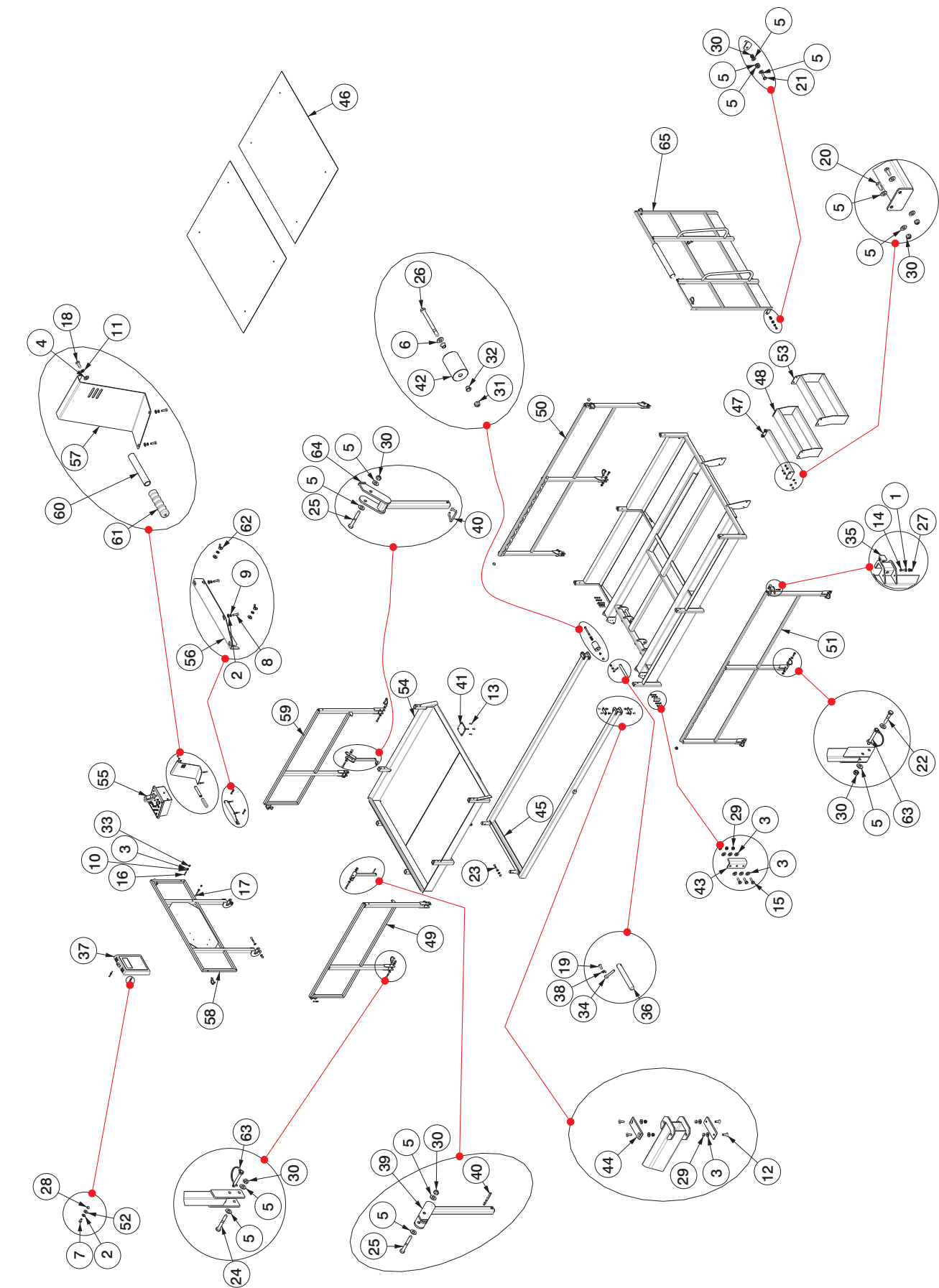
Base, stack, platform drawing



Item	Part No	Qty	Description
1.	3603-16	4	Plain Washer
2.	3605-16	4	Spring Washer
3.	3606-06016	8	Countersunk Socket Head Screw
4.	3610-10020	2	Metric Bolt
5.	3610-16040	4	Metric Bolt
6.	3624-3	4	Permaglide Bush
7.	8626	2	Pin Keeper
8.	9792	2	Pin
9.	11492-3	2	Tab Washer
10.	11658-20	8	Wear Plug
11.	12566	2	Sliding Block Weld
12.	12566-2	2	Wear Pad Slider Block (Bottom)
13.	12566-3	12	Slider Block Top
14.	12589	1	Slider Bar Weld
15.	13117-1	1	Counter Weight - Front
16.	13117-2	1	Counter Weight - Rear
17.	13117-4	1	Strap - Rear Counterweight
18.	13117-5	1	Strap - Front Counterweight
19.	13860	1	Platform Assy SRxx70 V3
20.	13893-02	1	2770 Stack
21.	13893-03	1	3370 Stack
22.	13893-04	1	3970 Stack
23.	13894A	1	Base Assy - SRxx70 V4 weld on stabs

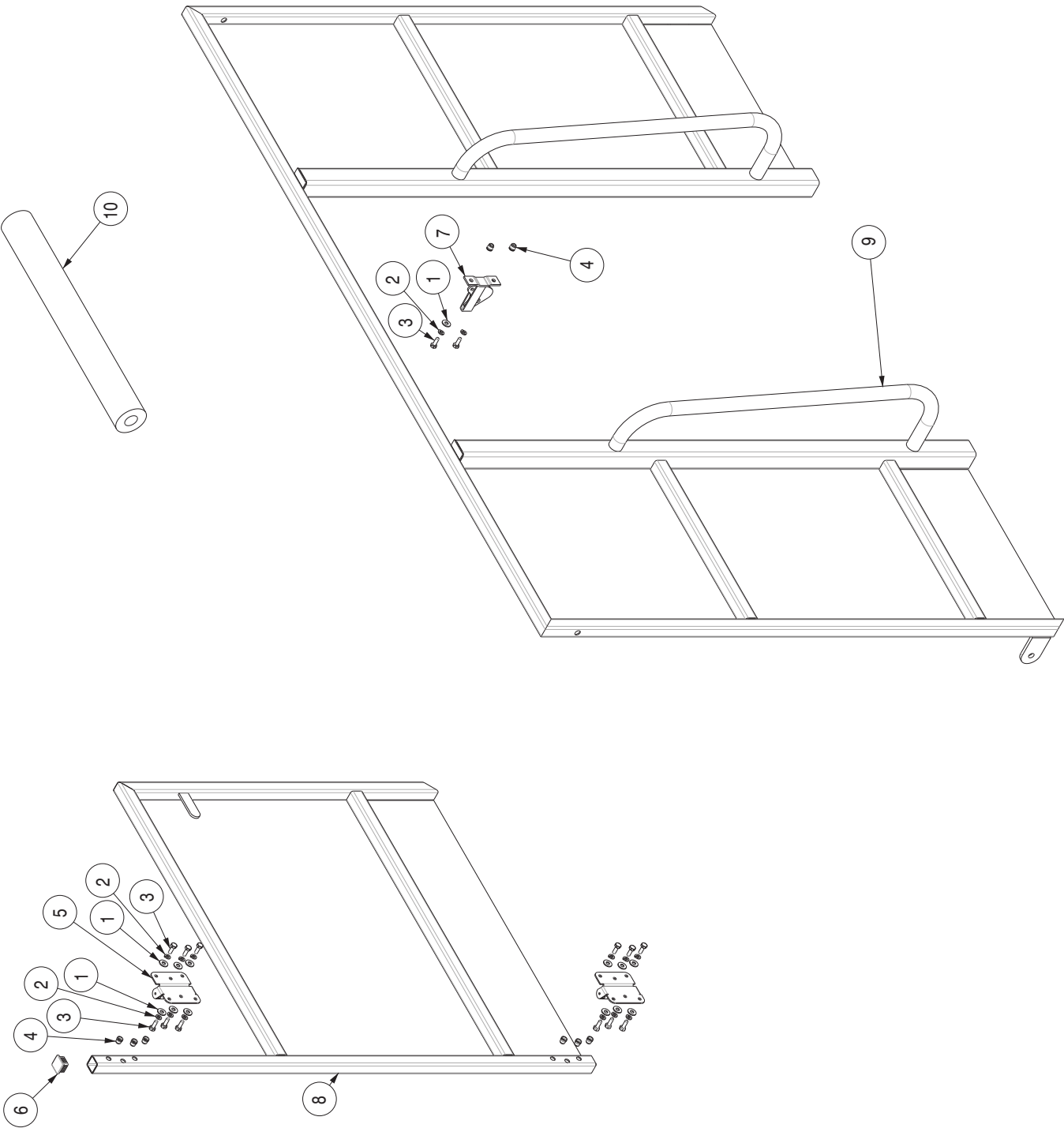


Item	Part No	Qty	Description
1.	3603-04	8	Plain Washer
2.	3603-05	6	Plain Washer
3.	3603-06	24	Plain Washer
4.	3603-08	1	Plain Washer
5.	3603-10	48	Plain Washer
6.	3603-12	4	Plain Washer
7.	3604-05012	2	Pan Head Screw M5 x 12
8.	3604-05020	4	Machine Screw
9.	3605-05	4	Spring Washer
10.	3605-06	4	Spring Washer
11.	3605-08	1	Spring Washer
12.	3606-06020	8	Countersunk Socket Head Screw
13.	3606-06025	8	Countersunk Socket Head Screw
14.	3610-04016	4	Metric Bolt
15.	3610-06020	6	Metric Bolt
16.	3615-06050	1	Set Screw
17.	3615-06065	1	Set Screw
18.	3610-08020	1	Metric Bolt
19.	3610-10020	4	Metric Bolt
20.	3610-10025	2	Metric Bolt
21.	3610-10030	2	Metric Bolt
22.	3610-10050	6	Metric Bolt
23.	3610-10060	2	Metric Bolt
24.	3610-10070	6	Metric Bolt
25.	3610-10075	2	Metric Bolt
26.	3610-12130	2	Metric Bolt
27.	3611-04	4	Metric Nyloc Nut
28.	3611-05	2	Metric Nyloc Nut
29.	3611-06	14	Metric Nyloc Nut
30.	3611-10	22	Metric Nyloc Nut
31.	3611-12	2	Metric Nyloc Nut
32.	3626-2	4	Flanged Permaglide Bush
33.	3628-06AL	2	Alloy Nut-Insert
34.	8626	4	Pin Keeper
35.	8926-1	4	Plug RHS 25mm
36.	9792	4	Pin
37.	010076-000	1	Manual Enclosure
38.	11492-3	4	Tab Washer
39.	11695	1	Handrail Latch Left
40.	11695-3	2	Latch Holding Ring
41.	12709-10	2	Rollout Deck Slide Pad
42.	13122-11	2	External Roller
43.	13122-12	2	Stop - Roll Out
44.	13122-14	4	Wear Pad - Internal
45.	13128	1	Rollout Frame Weld
46.	13132	2	Platform Floor Pressing
47.	13258	1	Extension Step Weld (2770)
48.	13259	1	Extension Step Weld (3370)
49.	13262	1	Handrail Left Front
50.	13264	1	Right Hand Rail
51.	13268	1	Left Hand Rail
52.	13525-05	2	Washer - Mini Fender M5
53.	13649	1	Extension Step, S3970RT
54.	13786	1	Roll Out Deck Weld
55.	13809-01	1	Control Box Assy - Upper SR V4
56.	13837-01	1	Control Box Mount - Front



Item	Part No	Qty	Description
57.	13837-02	1	Control Box Mount Side
58.	13840	1	Handrail Front
59.	13841	1	Handrail Right Front
60.	13843	1	Wrist Support
61.	13843-03	1	Handgrip - Black 25mm id
62.	13863-06	2	Wing Nut, M6 ZP
63.	302544	14	Pin & Lock
64.	11695R	1	Handrail Latch Right
65.	13265A	1	Handrail Assy - Entry End

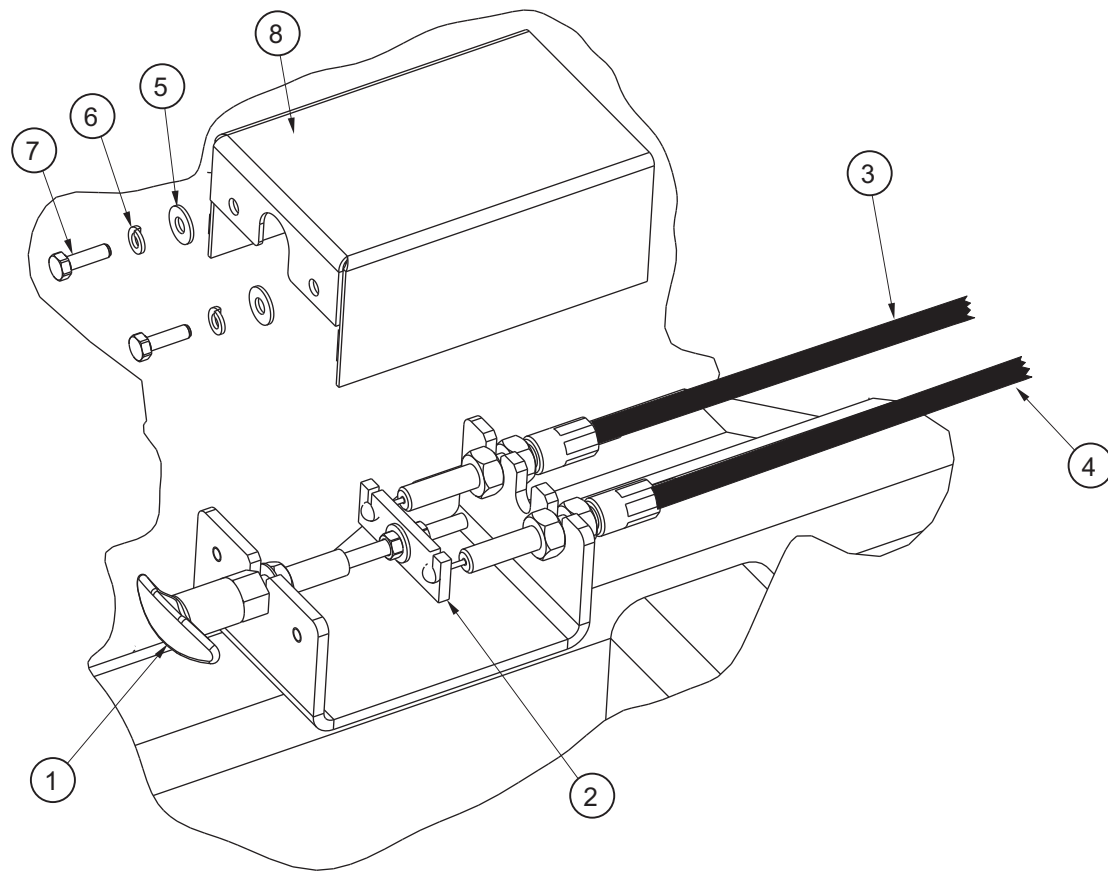
Platform rear handrail drawing



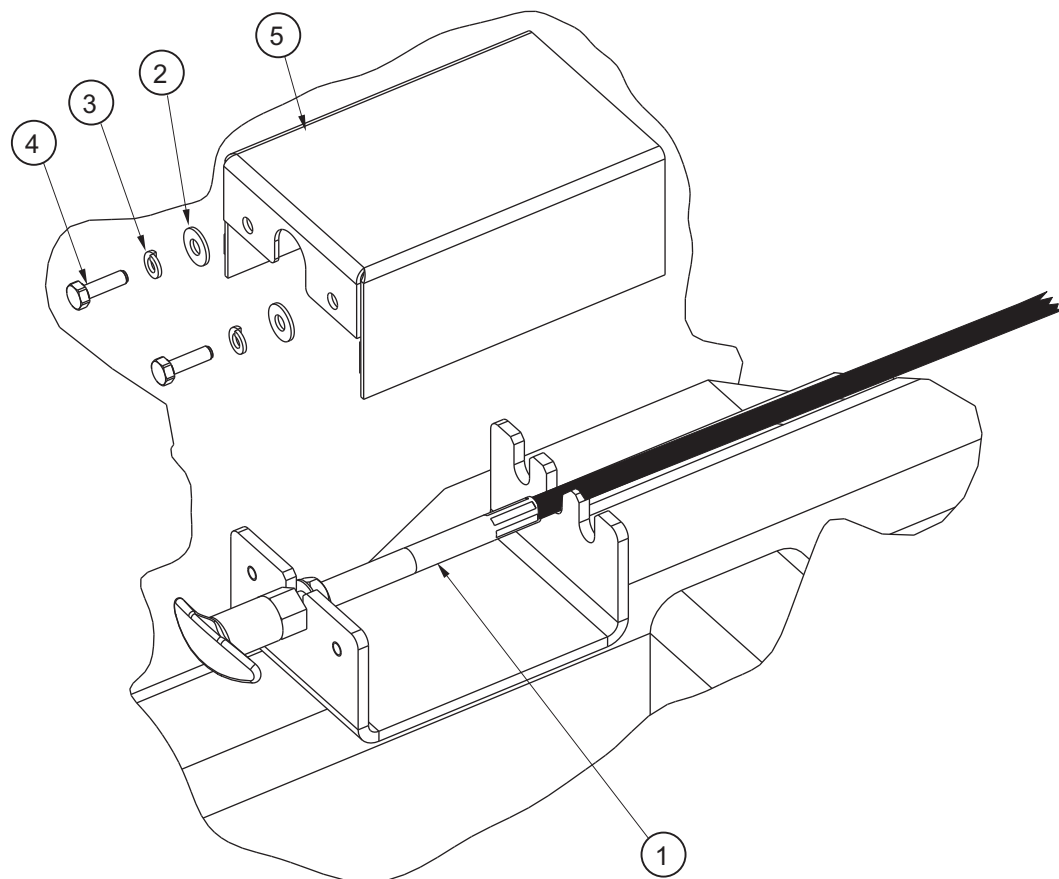
Item	Part No	Qty	Description
1.	3603-06	14	Plain Washer
2.	3605-06	14	Spring Washer
3.	3610-06016	14	Metric Bolt
4.	3628-06	14	Nutsert M6
5.	7495	2	Spring Hinge
6.	8926-1	1	Plug RHS 25mm
7.	11691-10	1	Gate Latch Striker Set
8.	13127	1	Handrail - Gate
9.	13265	1	Hand Rail Weld Entry
10.	9980003	1	Foam Pipe Rap

Emergency lower S3970RT, S3370RT

Item	Part No	Qty	Description
1.	12726	1	Bleed down handle
2.	12724	1	Bridge plate
3.	12722	1	Bleed down cable (short) to lower lift cylinder
4.	12723	1	Bleed down cable (long) to upper lift cylinder
5.	3603-06	2	Washer, plain, M6 x 16, ZP
6.	3605-06	2	Washer, spring, M6
7.	3610-06020	2	Bolt, M6 x 20, C8.8, ZP
8.	12818	1	Bleed down cover

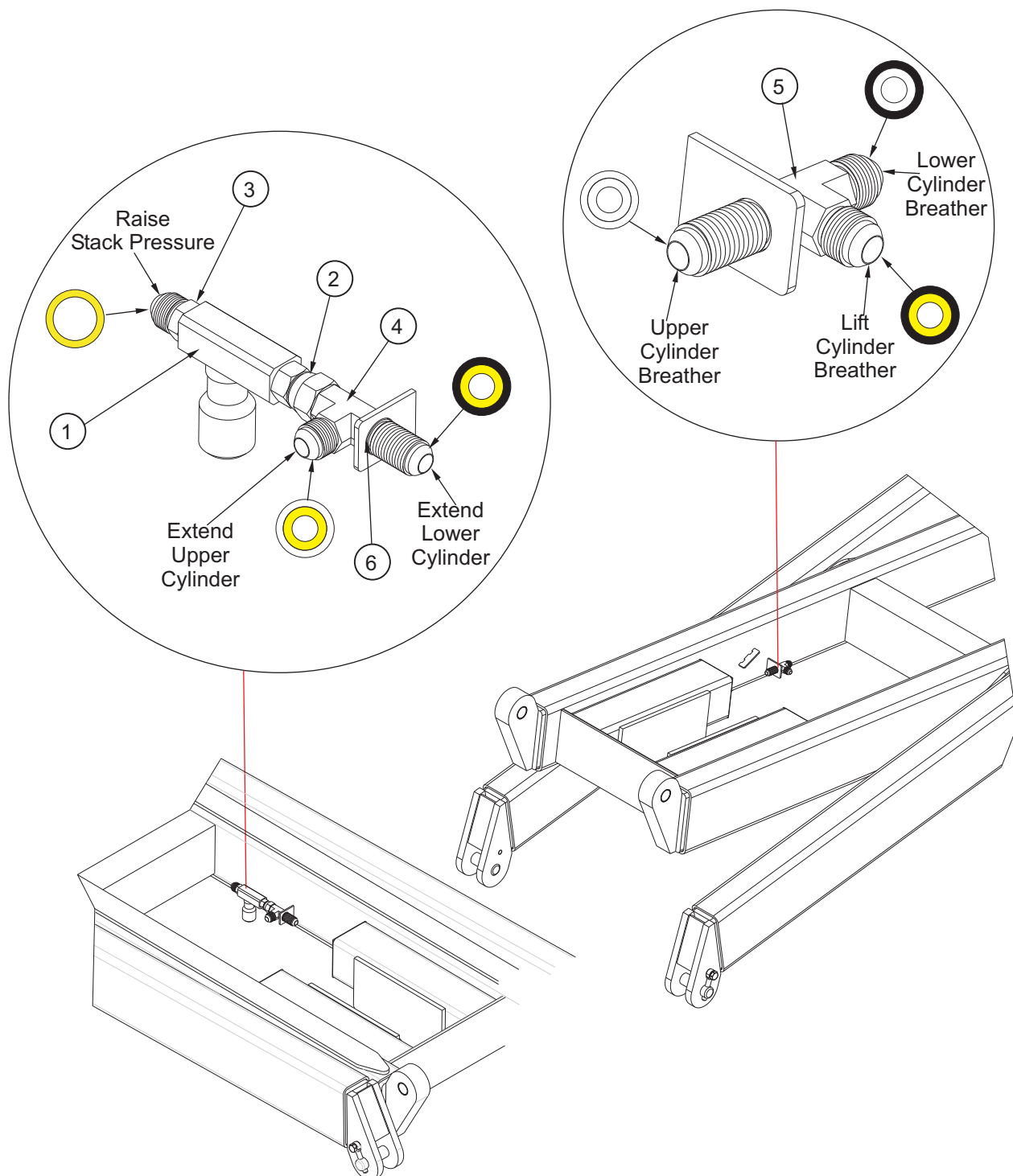


Item	Part No	Qty	Description
1.	12748	1	Bleed down handle and cable to lift cylinder
2.	3603-06	2	Washer, plain, M6 x 16, ZP
3.	3605-06	2	Washer, spring, M6
4.	3610-06020	2	Bolt, M6 x 20, C8.8, ZP
5.	12818	1	Bleed down cover

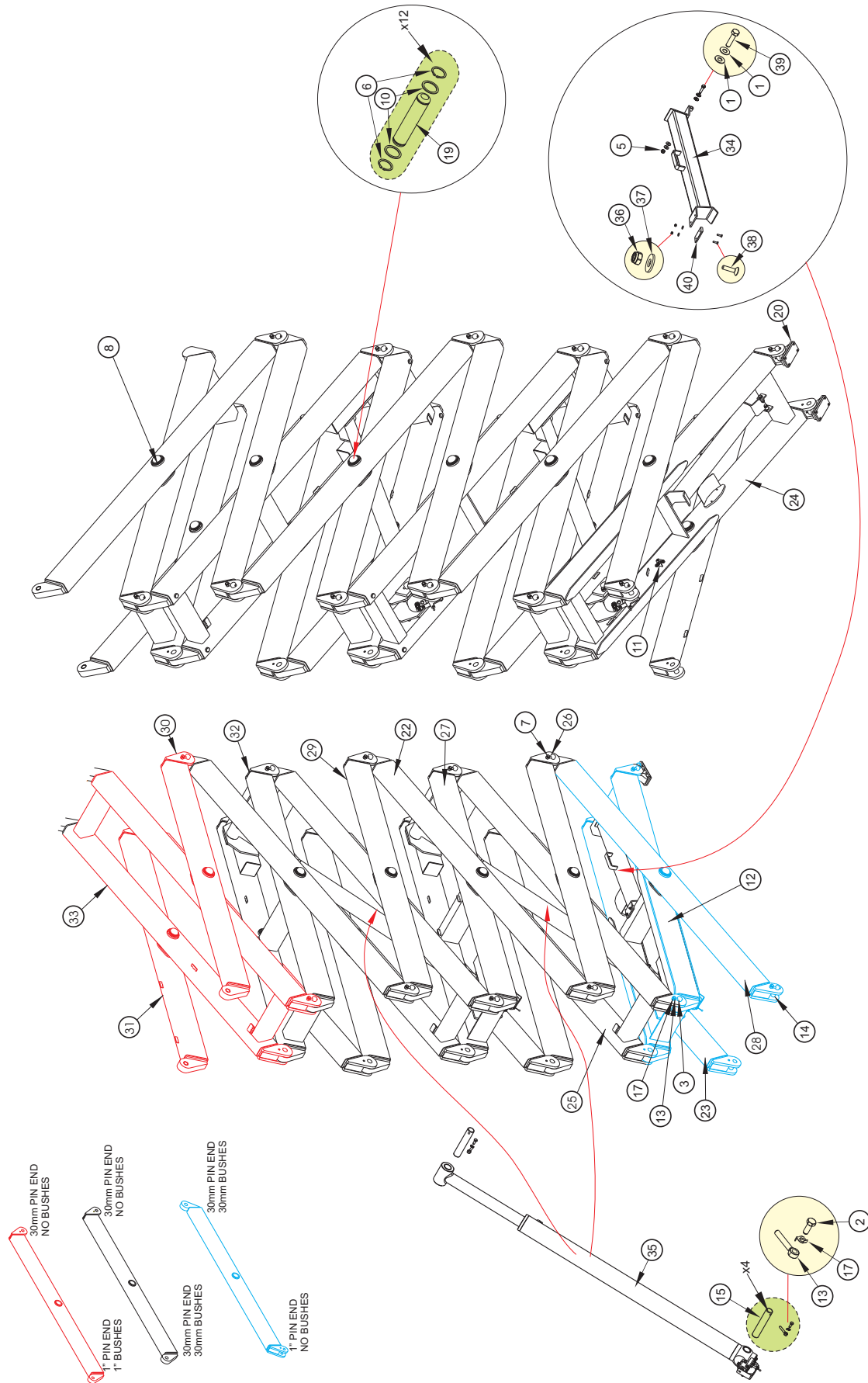


Scissor stack tees S3970RT, & S3370RT

Item	Part No.	Qty	Description
1.	13037	1	Adjustable flow control valve
2.	512987-000	1	Adapter, 3/8" BSPPM -> 3/16" ORFSF
3.	512985-000	1	Adapter, 3/8" BSPPM -> 3/16" ORFSM
4.	512986-000	1	Tee, ORFSM*3, Bulkhead Run
5.	13782-04	1	Tee, ORFSM*3, Bulkhead Run
6.	3603-20	1	Washer, plain, M20 x 37, ZP

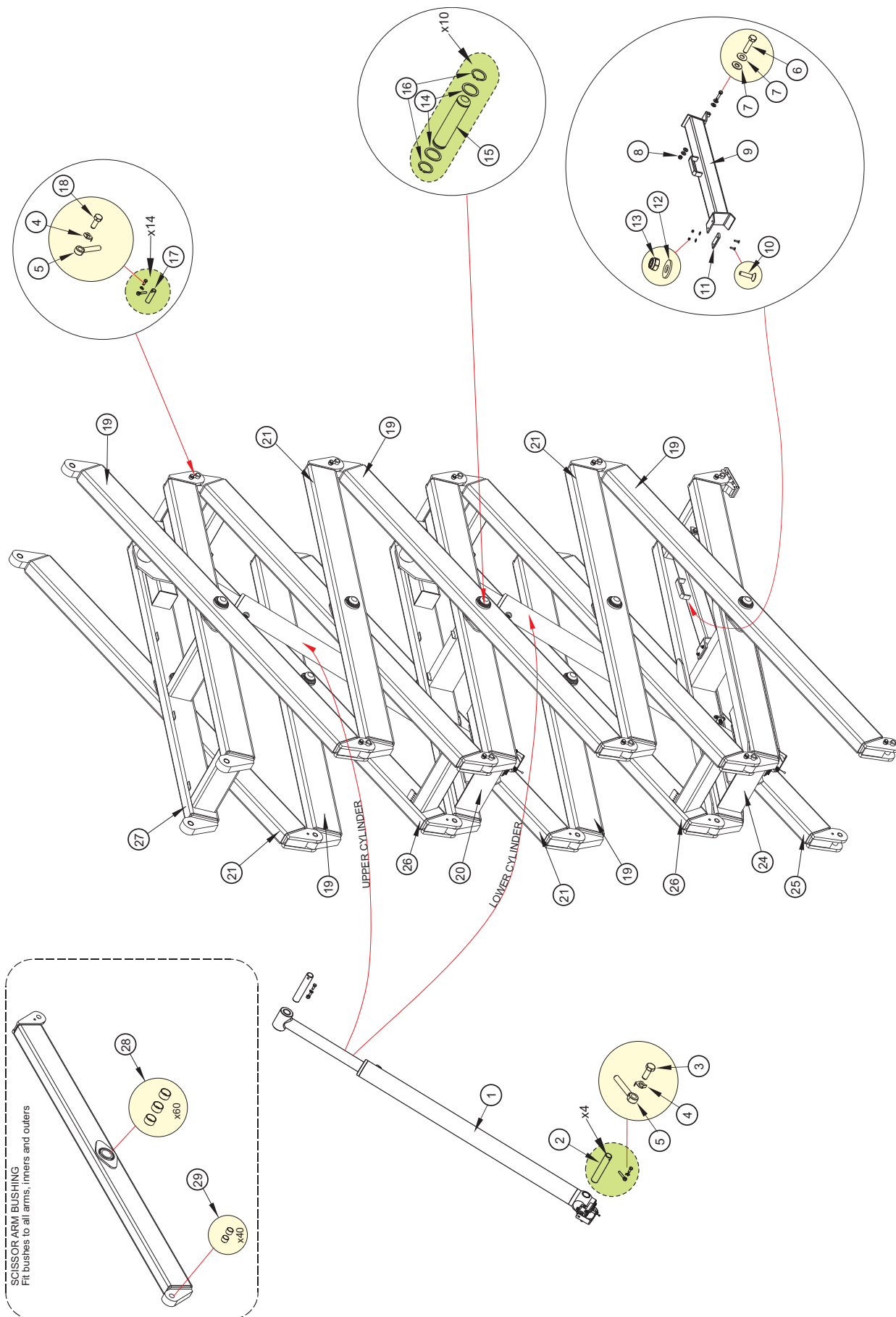


Scissor stack assembly drawing, S3970RT



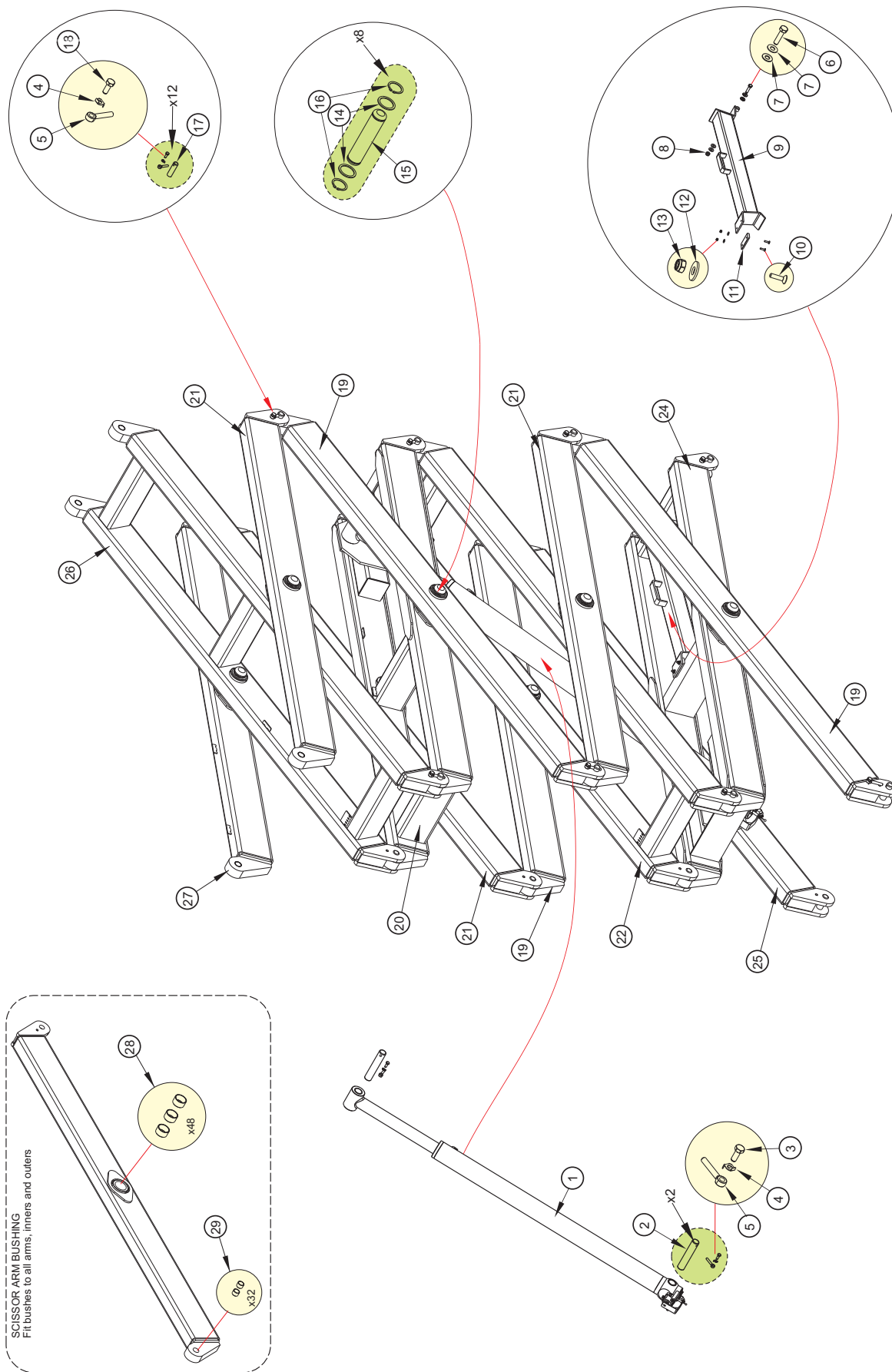
Item	Part No	Qty	Description
1.	3603-10	4	Washer, plain, M10 x 24 ZP
2.	3610-10020	2	Bolt, metric, M6 x 20, C8.8 ZP
3.	3610-10025	27	Bolt, metric, M6 x 25, C8.8 ZP
4.	3610-10040	2	Bolt, metric, M6 x 40, C8.8 ZP
5.	3611-10	2	Nut, nyloc, metric, M10
6.	3619-5	24	External circlip
7.	3624-19	40	Bush, permaglide
8.	3624-2	72	Bush, permaglide
9.	3624-3	8	Bush, permaglide
10.	3629-5062L	24	Washer, scissor pivot
13.	8626	30	Pin keeper
14.	8699	4	Pin
15.	9292	4	Pin
16.	9792	2	Pin
17.	11492-3	30	Washer, tab
18.	11658-20	8	Wear plug
19.	11804	12	Scissor pivot pin
20.	12566	2	Sliding block weld
21.	12589	1	Slider bar weld
22.	13667-1	4	Arm, outer, mid right hand
23.	13667-12	1	Arm, first, outer, right hand
24.	13667-14	1	Arm, lower, inner weld
25.	13667-15	2	Arm, inner, mid
26.	13667-16	20	Pin, 30mm x 93mm
27.	13667-17	1	Arm, inner, dual cylinder weld
28.	13667-19	1	Arm, outer, odd ends, 1" female
29.	13667-2	4	Arm, outer, mid left hand
30.	13667-24	1	Arm, outer, top odd ends, left hand
31.	13667-26	1	Arm, outer, top odd ends, right hand
32.	13667-27	1	Arm, inner, upper cylinder top
33.	13667-28	1	Arm, inner, top
34.	11380A	1	Safety prop
35.	13906-01	1	Cylinder assembly, lower lift
36.	3611-06	2	Nut, nyloc, M6
37.	3603-06	2	Washer, plain, M6 x 16 ZP
38.	3606-06025	2	Capscrew, countersunk, M6 x 25, stainless steel
39.	3610-10120	1	Bolt, M10 x 120, C8.8 ZP
40.	11143-2	1	Wearpad
?	13906-02	1	Cylinder assembly, upper lift

Scissor stack assembly drawing, S3370RT



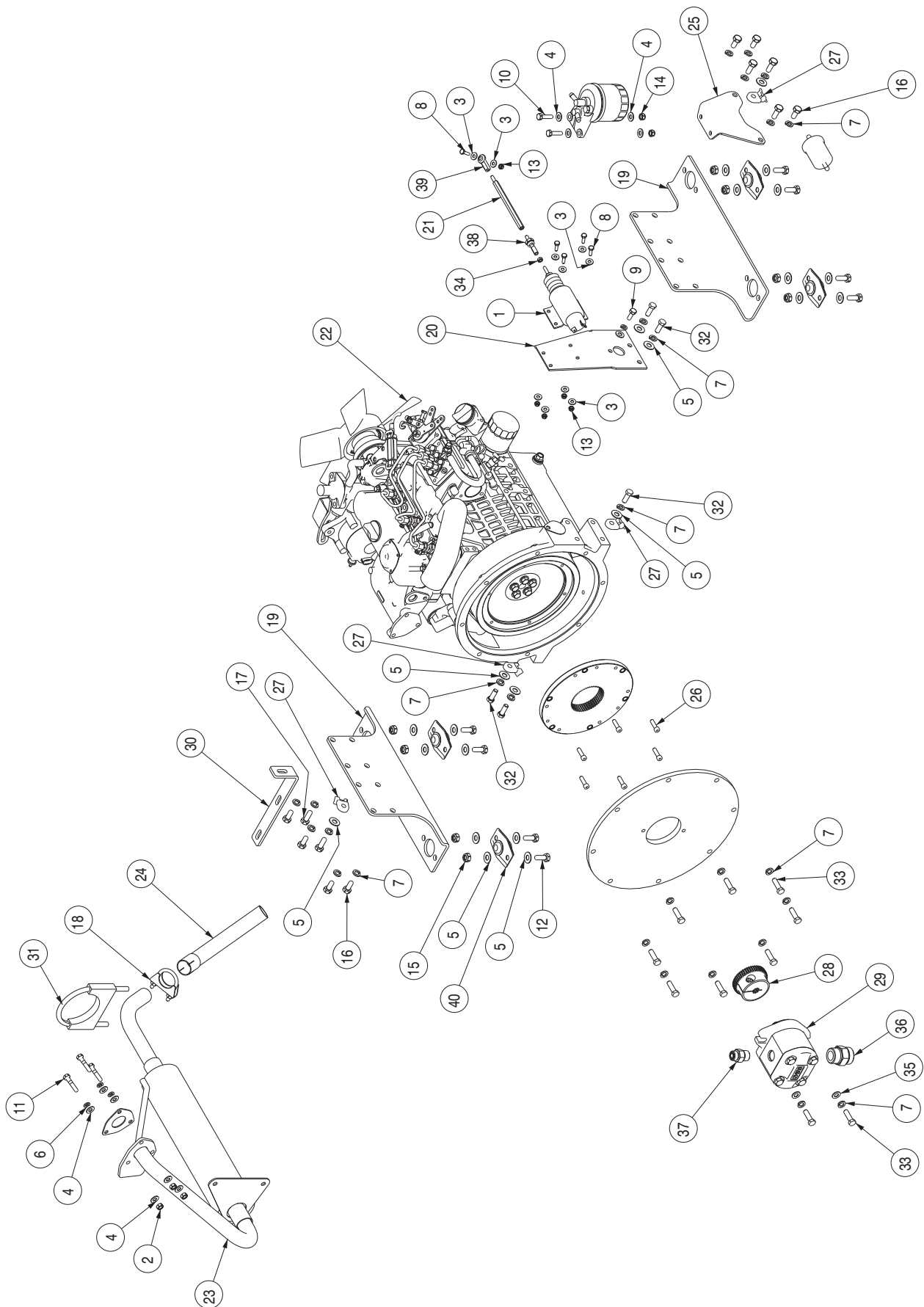
Item	Part No.	Qty	Description
1.	13906-01	1	Cylinder assembly, lower lift
2.	9292	4	Pin, 38.1 x 200mm, 10mm keeper
3.	3610-10020	4	Bolt, M6 x 20, C8.8 ZP
4.	11492-3	20	Locktab M10
5.	8626	20	Pin keeper, 10mm, plated
6.	3610-10120	1	Bolt, M10 x 120, C8.8 ZP
7.	3603-10	4	Washer, flat, M10 x 24 ZP
8.	3611-10	1	Nylock nut, M10
9.	11380	1	Safety prop weld
10.	3606-06025	2	Capscrew, countersunk socket, M6 x 25 stainless steel
11.	11143-2	1	Wear pad
12.	3603-06	2	Washer, flat, M6 x 16 ZP
13.	3611-06	2	Nylock nut, M6
14.	3629-5062L	20	Washer, scissor pivot, 51 ID x 65 OD
15.	11804	10	Scissor pivot pin
16.	3619-5	20	Circlip, external, 50mm nominal diameter
17.	8699	16	Pin, arm/arm
18.	3610-10025	16	Bolt, M10 x 25, G8.8 ZP
19.	12529	5	Arm, outer, mid right hand weld
20.	12588	1	Arm, inner, 2 cylinder weld
21.	12530	4	Arm, outer, mid left hand weld
24.	13823	1	Arm, inner, lower weld
25.	12713	1	Arm, outer, lower right weld
26.	12906	2	Arm, inner weld
27.	12621	1	Arm, inner, top weld
28.	3624-2	60	Bush
29.	3624-3	40	Bush
?	13906-02	1	Cylinder assembly, upper lift

Scissor stack assembly drawing, S2770RT



Item	Part No	Qty	Description
1.	13906-01	1	Cylinder assembly, lower lift
2.	9292	2	Pin, 38.1 x 200mm, 10mm keeper
3.	3610-10020	2	Bolt, M10 x 20, C8.8 ZP
4.	11492-3	14	Locktab, M10
5.	8626	14	Pin keeper, 10mm, plated
6.	3610-10120	1	Bolt, M10 x 120, C8.8 ZP
7.	3603-10	4	Washer, flat, M10 x 24 ZP
8.	3611-10	1	Nylock nut, M10
9.	11380	1	Safety prop weld
10.	3606-06025	2	Cap screw, countersunk socket, M6 x 25, stainless steel
11.	11143-2	1	Wear pad
12.	3603-06	2	Washer, flat, M6 x 16 ZP
13.	3611-06	2	Nylock nut, M6
14.	3629-5062L	16	Washer, scissor pivot (Washer 51 ID x 65 OD)
15.	11804	8	Scissor pivot pin
16.	3619-5	16	Circlip, external, 50mm nominal diameter
17.	8699	12	Pin, arm/arm
18.	3610-10025	12	Bolt, M10 x 25, C8.8
19.	12529	3	Arm, outer, mid right hand weld
20.	9332	1	Arm, inner upper weld
21.	12530	3	Arm, outer, mid left hand weld
22.	12906	1	Arm, inner, mid weld
24.	12933	1	Arm, inner, lower weld
25.	12713	1	Arm, outer, lower right weld
26.	9331	1	Arm, inner, upper fourth stage
27.	9502	1	Arm, outer, upper weldment
28.	3624-2	48	Bush
29.	3624-3	32	Bush

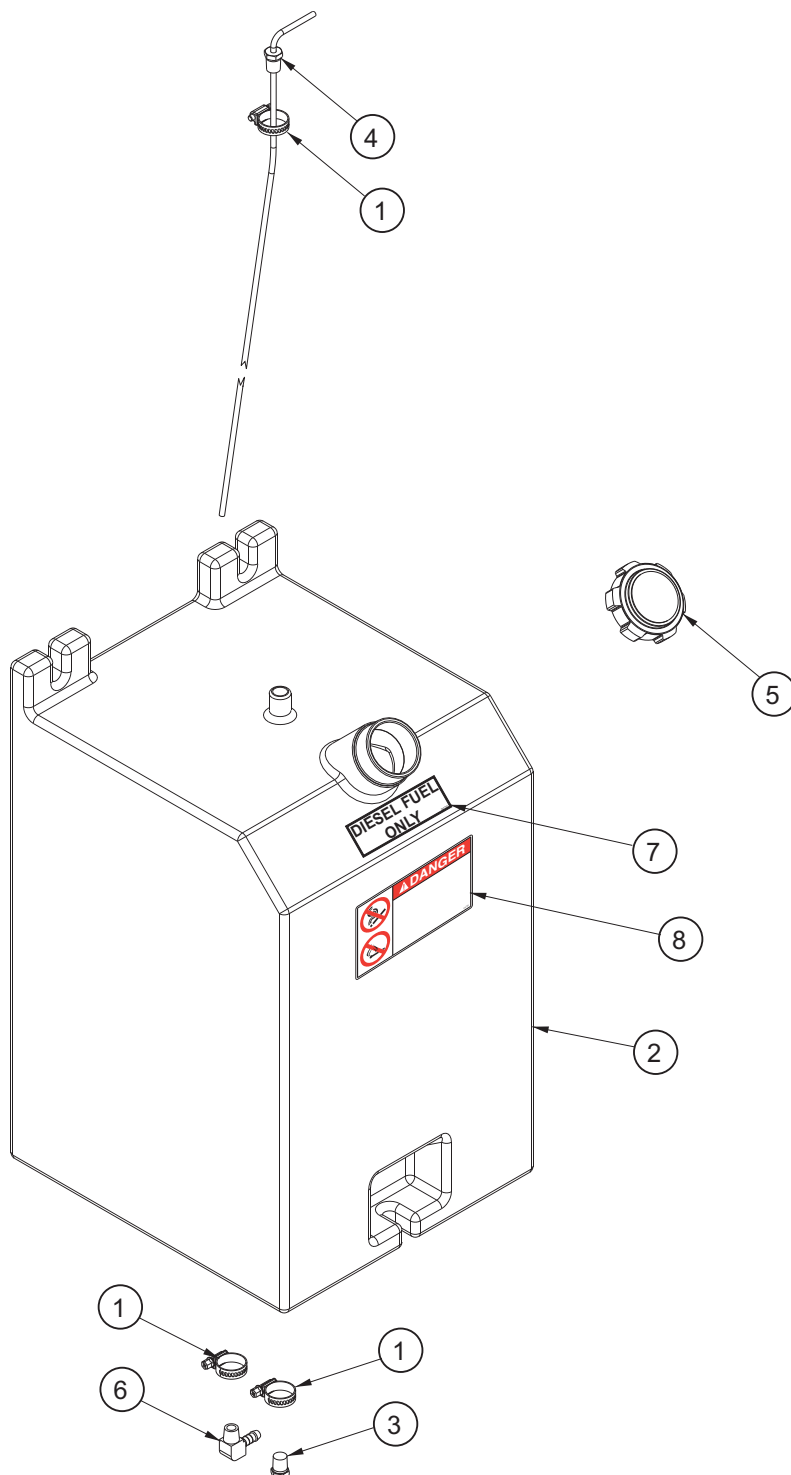
Engine assembly drawing, Kubota D902



Item	Part No	Qty	Description
1.	304-0174	1	Solenoid 24V
2.	3602-08	3	Metric Hex Nut
3.	3603-06	10	Plain Washer
4.	3603-08	11	Plain Washer
5.	3603-10	23	Plain Washer
6.	3605-08	4	Spring Washer
7.	3605-10	27	Spring Washer
8.	3610-06020	5	Metric Bolt
9.	3610-08020	1	Metric Bolt
10.	3610-08030	2	Metric Bolt
11.	3610-08040	3	Metric Bolt
12.	3610-10025	8	Metric Bolt
13.	3611-06	5	Metric Nyloc Nut
14.	3611-08	2	Metric Nyloc Nut
15.	3611-10	8	Metric Nyloc Nut
16.	3617-10020	7	Metric Bolt
17.	3617-10025	5	Metric Bolt
18.	12409	1	Exhaust Clamp - 38mm
19.	12944	2	Engine Mount Feet, SRxx70 D902
20.	13022	1	Throttle Solenoid Bracket - D902
21.	13023	1	Throttle Lever - D902
22.	13086	1	Kubota D902 Engine Assembly
23.	13093	1	Exhaust - SRxx70 D902
24.	13093-10	1	Tail Pipe - Detachable
25.	13095	1	Fuel Filter Bracket - Kubota D902
26.	13104-0516	6	Cap Screw - UNC 5/16 x 1" G8 Black
27.	13164	4	Cable tie Mount - M10
28.	13244	1	Coupling - SAE#5 Bell, 6.5"Fly, SAE'A' 9 Spline Pump
29.	13628	1	Pump - SAE-A, 9 Spline 10.3cc
30.	13904-03	1	Muffler Support Bracket
31.	13905	1	Saddle Clamp
32.	60017-007	5	1" x 3/8 UNC Bolt
33.	60017-010	10	1" x 3/8 UNC Bolt
34.	60021-008	1	1/4" NF Hex Nut
35.	60030-049	2	3/8" Plain Washer
36.	512968-000	1	Hyd Fitting - Straight ORFS(16)-SAE(16)
37.	512969-000	1	Hyd Fitting - Straight ORFS(08)-SAE(10)
38.	2650001	1	Swivel Inline
39.	2690004	1	Rod End
40.	7630208	4	Engine Mount

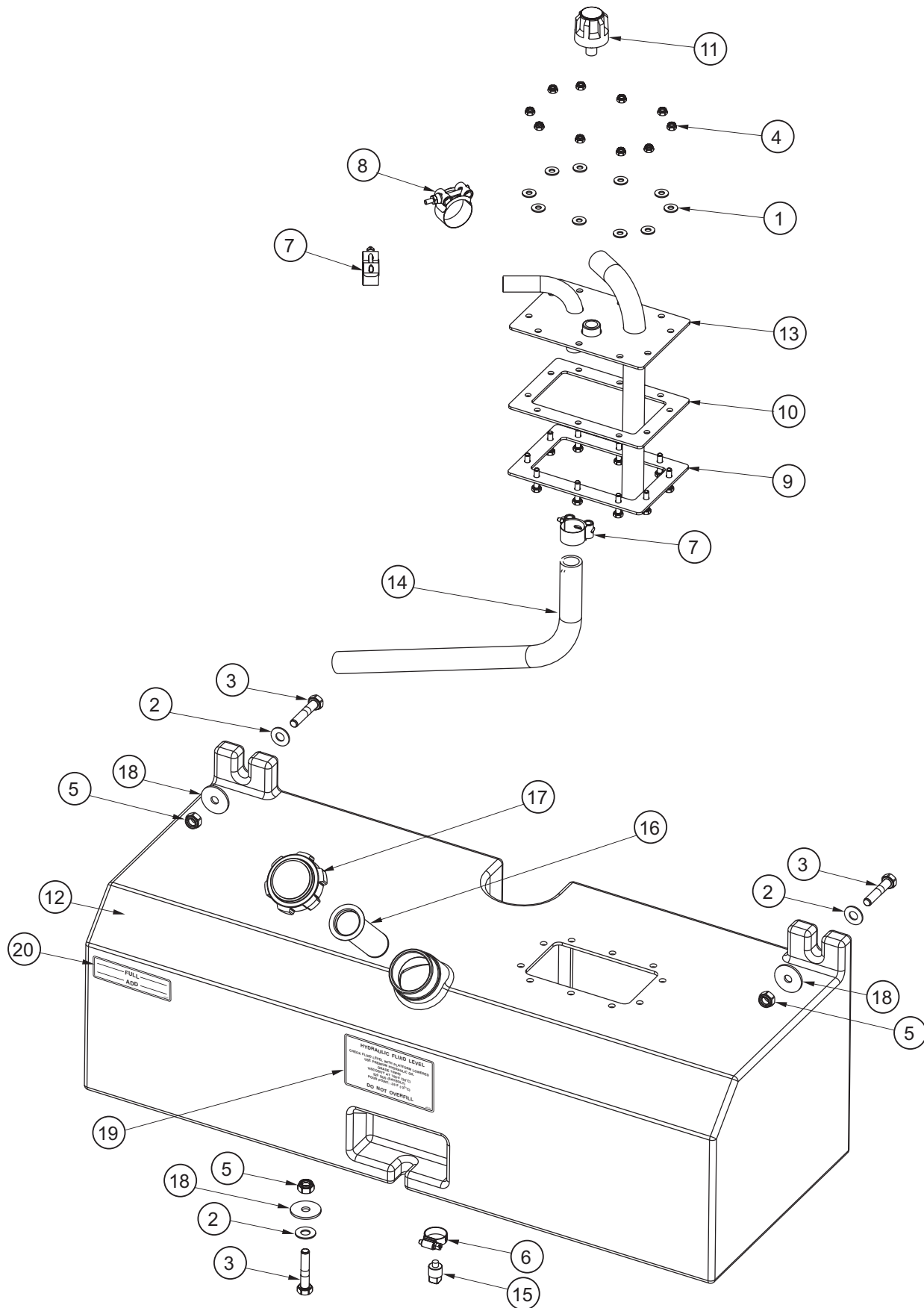
Fuel tank assembly, diesel fuel

Item	Part No	Qty	Description
1.	3618-11	3	Hose clamp, 11-12mm, ZP
2.	13106-1	1	Fuel tank
3.	13108-04	1	Plug, 1/4" NPTM
4.	13109	1	Fuel return weld
5.	605256	1	Cap, vented
6.	967309	1	Male elbow, 5/16" x 1/4", BSPT
7.	605726	1	Decal, Diesel fuel only
8.	476706	1	Decal, Danger explosive fumes

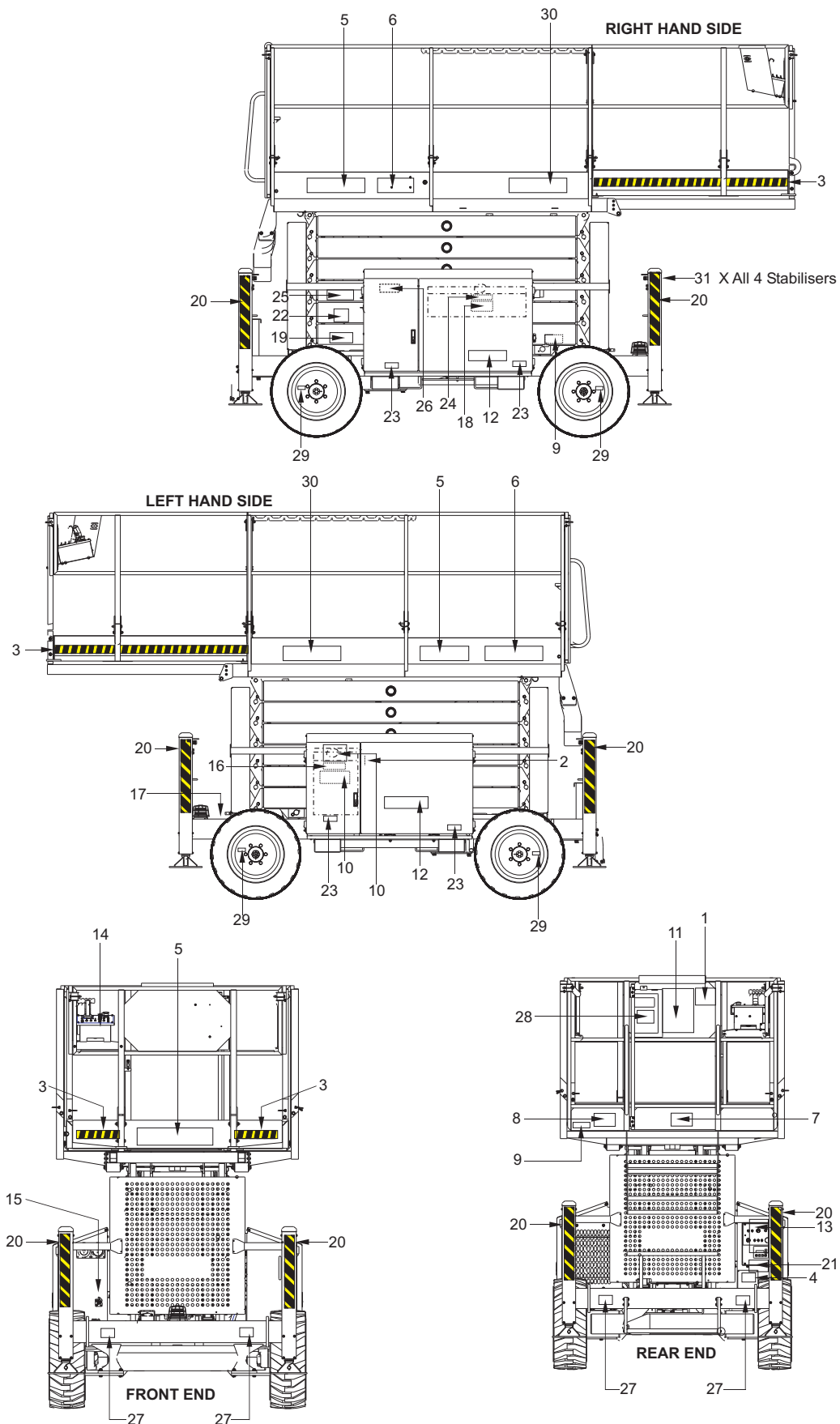


Item	Part No	Qty	Description
1.	3603-06	10	Washer, plain, M6 x 16, ZP
2.	3603-10	3	Washer, plain, M10 x 24, ZP
3.	3610-10050	3	Bolt, M10 x 50, C8.8, ZP
4.	3611-06	10	Nut, nyloc, M6
5.	3611-10	3	Nut, nyloc, M10
6.	3618-11	1	Hose clamp, 11 - 25mm, ZP
7.	3618-26	2	Hose clamp, 26 - 28mm, ZP
8.	3618-32	1	Hose clamp, 34 - 37mm, ZP
9.	11430-1	1	Base plate weld
10.	11430-5	1	Gasket
11.	11487	1	Filter breather
12.	11558-1	1	Tank, 13 gallon
13.	11558-2	1	Top plate weld, plated
14.	11558-8	1	Tank inner hose
15.	452756	1	Plug, magnetic
16.	605246	1	Strainer, hydraulic tank filler
17.	605256	1	Cap, vented, standard
	11955	1	Cap, lockable, option
18.	5560179	3	Flat washer, special
19.	451776	1	Decal, hydraulic fluid
20.	302950	1	Decal, hydraulic fluid, max/min level

Hydraulic oil tank assembly drawing

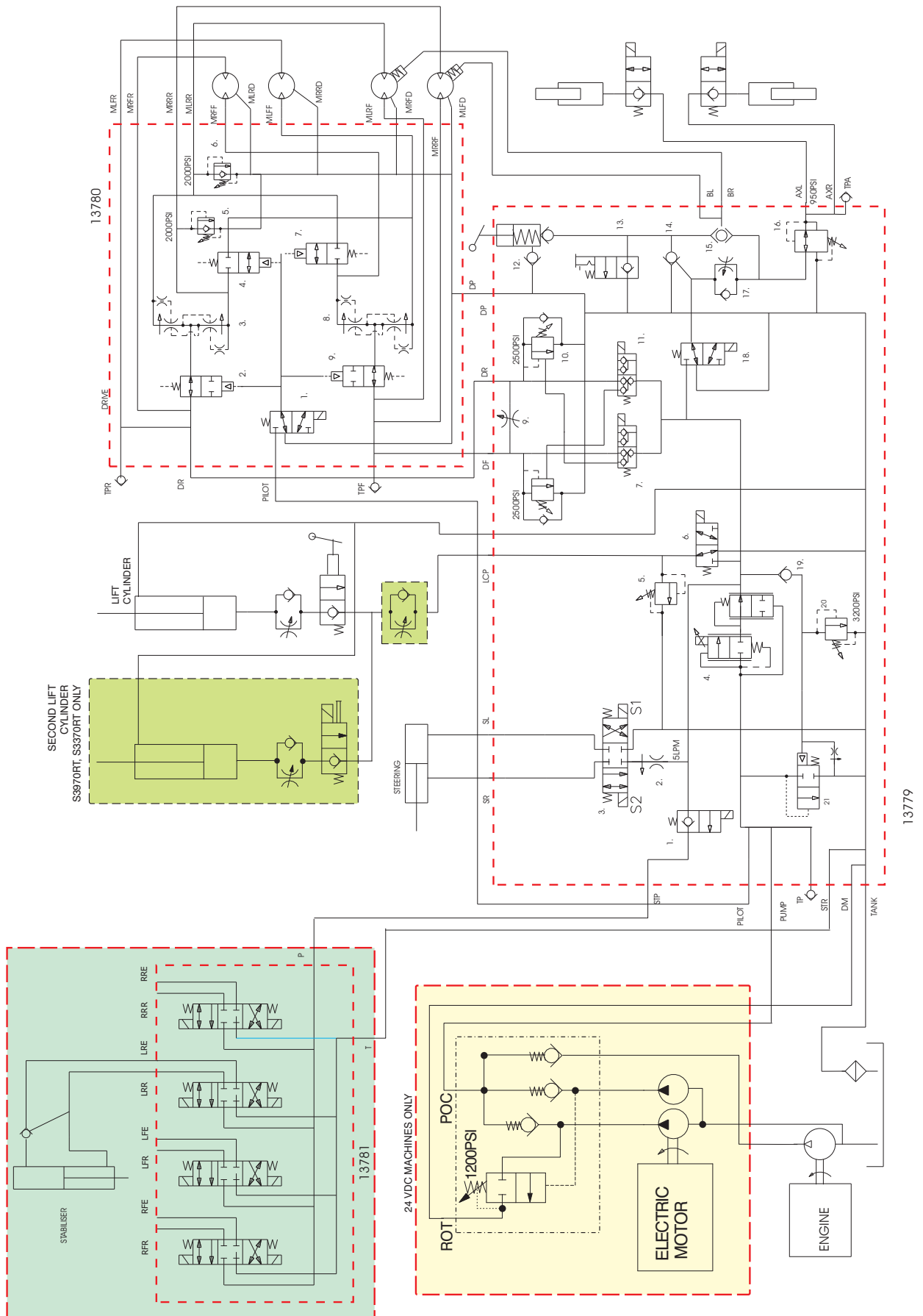


Placards and decals drawing



Item	Part No	Qty	Description
1.	1843	1	Decal, warning New Zealand only
2.	9208	1	Decal, water
3.	96924-9	4m	Decal, warning stripes yellow/black
4.	12833-10	1	Decal, serial number, 2770
	12833-11	1	Decal, serial number, 3370
	12833-12	1	Decal, serial number, 3970
5.	511099-000	3	Decal, Snorkel
6.	13903-14	2	Decal, S2770RT
	13903-15	2	Decal, S3370RT
	13903-10	2	Decal, S3970RT
7.	11346-1	1	Decal, rated load S2770RT
	12699	1	Decal, rated load S3370RT
	12699-4	1	Decal, rated load S3970RT
8.	0073298	1	Decal, foam tyres
9.	45198-6	2	Decal, interlocks
10.	476706	2	Decal, explosive fumes, (outside cabinet door & fuel tank)
11.	12574	1	Decal, danger with alarm
12.	511101-000	2	Decal, Snorkel
13.	13839-01	1	Decal, lower control box
14.	13838-01	1	Decal, upper control box
15.	0102006	1	Decal, battery disconnect
16.	605726	1	Decal, diesel fuel, (on fuel tank)
17.	12753	1	Decal, emergency bleed down
18.	12814	1	Decal, hydraulic fluid, (on hydraulic oil tank)
19.	58365-6	1	Decal, safety prop
20.	96924-9		Decal, warning stripes yellow/black
21.	300699	1	Decal, operators check list
22.	0323897	1	Decal, must not operate
23.	621486	4	Decal, forklift
24.	302950	1	Decal, hydraulic oil level
25.	300700	1	Decal, shearing hazard
26.	12816	1	Decal, emergency operation, lowering and pushing, (inside of door)
27.	0083427	4	Decal, lifting/tie down
28.	562426	1	Decal, operators manual enclosed
29.	0372061	4	Decal, torque wheel nuts
30.	511067-000	2	Decal, www.snorkellift.com
31.	501453-000	4	Decal, Foot crush hazard

Hydraulic schematic.	2-3
Hose Part Numbers and Colour Codes.	2-4
Hose part numbers and colour codes	2-4
Hose part numbers and colour codes	2-5
Manifold, main	2-6
Manifold assembly, main.	2-7
Manifold, 4WD	2-8
Manifold assembly, 4WD.	2-9
Manifold, stabilisers.	2-10
Manifold assembly, stabilisers.	2-11
Hydraulic cylinders and seal kits	2-12
Cylinder, steer	2-13
Cylinder, axle	2-14
Main lift cylinder, lower	2-15
Main lift cylinder, upper	2-16
Stabiliser cylinder.	2-17

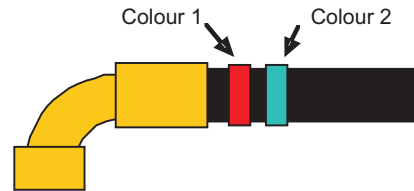


Hose Part Numbers and Colour Codes

READING HOSE TAGS

Hose tags are read from the fitting side of the hose in towards the hose.

As such colour 1 is the closest to the fitting, colour 2 the next colour then 3, 4 etc...



13763 - Hose Kit, Base, SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13763-01	Blue	Yellow	Steer Right: Main Manifold SR	Steer Cyl Extend
13763-02	Blue	Green	Steer Left: Main Manifold SL	Steer Cyl Retract
13763-03	Red	---	Drive Forward: Main Manifold DF	4WD Manifold DF
13763-04	Blue	---	Drive Reverse: Main Manifold DR	4WD Manifold DR
13763-05	Red	White	Motor RR Drain: 4WD Manifold MRRD	Motor RR Case Drain
13763-06	Orange	White	Motor LR Drain: 4WD Manifold MLRD	Motor LR Case Drain
13763-07	Yellow	White	Motor LF Drain: 4WD Manifold MLFD	Motor LF Case Drain
13763-08	Green	White	Motor RF Drain: 4WD Manifold MRFD	Motor RF Case Drain
13763-09	Red	Red	Motor RR CW (Fwd): 4WD Manifold MRRF	Motor RR Port A
13763-10	Red	Blue	Motor RR CCW (Rev): 4WD Manifold MRRR	Motor RR Port B
13763-11	Orange	Red	Motor LR CW (Rev): 4WD Manifold MLRR	Motor LR Port A
13763-12	Orange	Blue	Motor LR CCW (Fwd): 4WD Manifold MLRF	Motor LR Port B
13763-13	Yellow	Red	Motor LF CW (Rev): 4WD Manifold MLFR	Motor LF Port A
13763-14	Yellow	Blue	Motor LF CCW (Fwd): 4WD Manifold MLFF	Motor LF Port B
13763-15	Green	Red	Motor RF CW (Fwd): 4WD Manifold MRFF	Motor RF Port A
13763-16	Green	Blue	Motor RF CCW (Rev): 4WD Manifold MRFR	Motor RF Port B
13763-17	Red	Orange	4WD Block Pilot: Main Manifold Pilot	4WD Block Pilot
13763-18	Red	Black	4WD Manifold Return: Main Manifold DP	4WD Manifold DP
13763-19	Red	---	Motor RR Brake: Main Manifold BR	RR Motor Brake
13763-20	Orange	---	Motor LR Brake: Main Manifold BL	LR Motor Brake
13763-21	Green	---	Lock Left Axle: Main Manifold AXL	LH Axle Cyl
13763-22	Black	---	Lock Right Axle: Main Manifold AXR	RH Axle Cyl

13764 - Hose Kit, Stabilisers, SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13764-01	Red	Yellow	Stab RR Extend: Stab Manifold RRE	Stab Cyl RR Extend
13764-02	Red	Green	Stab RR Retract: Stab Manifold RRR	Stab Cyl RR Retract
13764-03	Orange	Yellow	Stab LR Extend: Stab Manifold LRE	Stab Cyl LR Extend
13764-04	Orange	Green	Stab LR Retract: Stab Manifold LRR	Stab Cyl LR Retract
13764-05	Yellow	Yellow	Stab LF Extend: Stab Manifold LFE	Stab Cyl LF Extend
13764-06	Yellow	Green	Stab LF Retract: Stab Manifold LFR	Stab Cyl LF Retract
13764-07	Green	Yellow	Stab RF Extend: Stab Manifold RFE	Stab Cyl RF Extend
13764-08	Green	Green	Stab RF Retract: Stab Manifold RFR	Stab Cyl RF Retract
13764-09	---	---	Stab Manifold Pressure: Main Manifold STP	Stab Manifold P
13764-10	---	---	Stab Manifold Return: Main Manifold STR	Stab Manifold R

13765 - Hose Kit, Control Cabinet, SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13765-01	---	---	Main Manifold Return: Main Manifold Tank	Oil Filter
13765-02	---	---	Filter Return: Oil Filter	Hydraulic Oil Tank

13766 - Hose Kit, Engine, Kubota D902, SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13766-01	Orange	---	Pump Pressure: Main Manifold Pump	Pump Pressure Port
13766-02	---	---	Suction Line: Pump Suction Port	Hydraulic Oil Tank

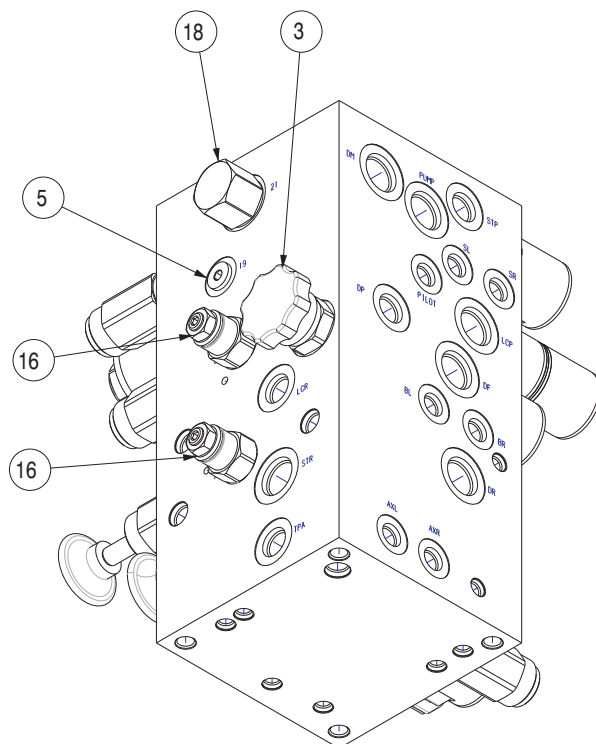
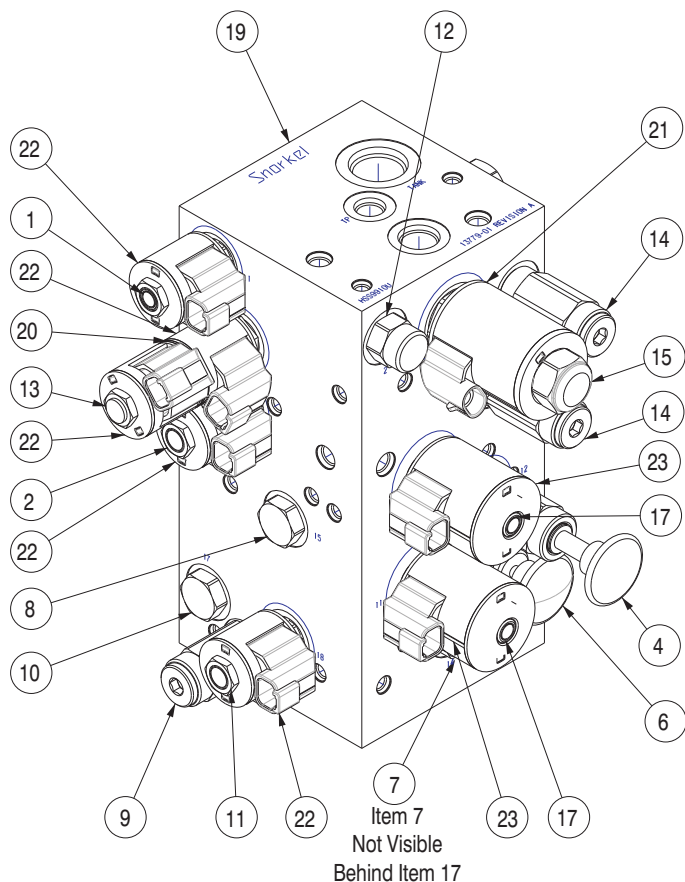
Hose part numbers and colour codes

13767 - Hose Kit, Stack (33 & 39), SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13767-01	Yellow	---	Raise Stack: Main Manifold LCP	Raise Stack Tee
13767-02	White	Yellow	Upper Lift Cyl Extend: Raise Stack Tee	Upper Lift Cyl Extend
13767-03	Black	Yellow	Lower Lift Cyl Extend: Raise Stack Tee	Lower Lift Cyl Extend
13767-04	White	---	Lift Cyl Drain: Main Manifold LCR	Drain Stack Tee
13767-05	White	White	Upper Lift Cyl Drain: Drain Stack Tee	Upper Lift Cyl Drain
13767-06	Black	White	Lower Lift Cyl Drain: Drain Stack Tee	Lower Lift Cyl Drain

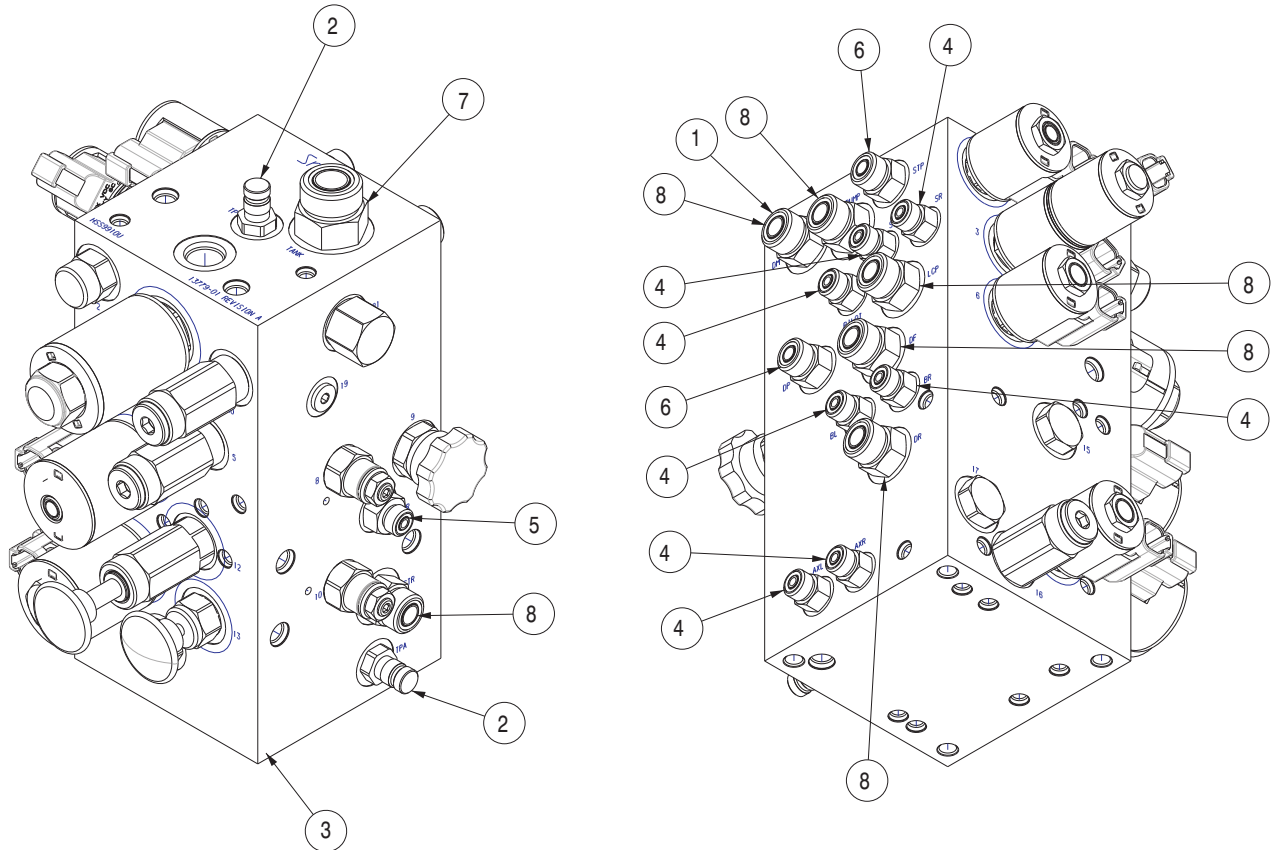
13768 - Hose Kit, Stack (22 & 27), SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13768-02	Black	Yellow	Raise Stack: Main Manifold LCP	Lift Cyl Extend
13768-01	Black	White	Lift Cyl Drain: Main Manifold LCR	Lift Cyl Drain

13769 - Hose Kit, Electric 24V Bi-Energy, SR V4 Rev A				
Snorkel Hose Part Number	Colour ID		Hose Use: Fitting A Fitting B	
	Colour 1	Colour 2		
13769-01	Part # both ends		Unloader Return: Unloader Valve ROT	Main Manifold DM1
13769-02	Part # both ends		Unloader Pressure Out: Unloader Valve POC	Main Manifold PUMP
13769-03	Part # both ends		Suction Hose: Tank to Suction Tee	

Manifold, main



Index	Cartridge circuit #	Part #	Part Description	# Req
1	1	12567-1	Cartridge, Solenoid- Poppet, 2-Way, NC	1
2	6	12567-11	Cartridge, Solenoid- Spool, 3-Way	1
3	9	12567-15	Cartridge- Needle Valve	1
4	12	12567-19	Cartridge- Hand Pump	1
5	19	12567-2	Cartridge- Check Valve	1
6	13	12567-20	Cartridge- Manual Pull to Open	1
7	14	12567-21	Cartridge- Check, Pilot to Open	1
8	15	12567-22	Cartridge- Load Shuttle	1
9	16	12567-23	Cartridge- Pressure Reducing	1
10	17	12567-24	Cartridge- Flow Control, Orifice Check	1
11	18	12567-25	Cartridge, Solenoid- Spool, 3-Way	1
12	2	12567-3	Cartridge- Flow Regulator, Pressure Compensated	1
13	3	12567-4	Cartridge, Solenoid- Spool, 4-Way, 3-Posn, Motor Spool	1
14	5, 20	12567-8	Cartridge- Relief, Direct-Acting Poppet	2
15	4	12567-9	Cartridge- Proportional 2-Port, NC	1
16	8, 10	13161-17	Cartridge- Counter Balance	2
17	7, 11	13161-18	Cartridge, Solenoid- Poppet, 3-Port, NC	2
18	21	13161-28	Cartridge- Pressure Compensate & Flow Regulator	1
19		13779-01	Manifold Block- Main SR V4	1
20		13881-08	Coil Spacer- 08	1
21		13895	Coil - 70 Proportional Deutsch DT Connector	1
22		6019180	Coil - 08 12V Deutsch DT Connector	5
23		6019184	Coil - 10 12V Deutsch DT Connector	2



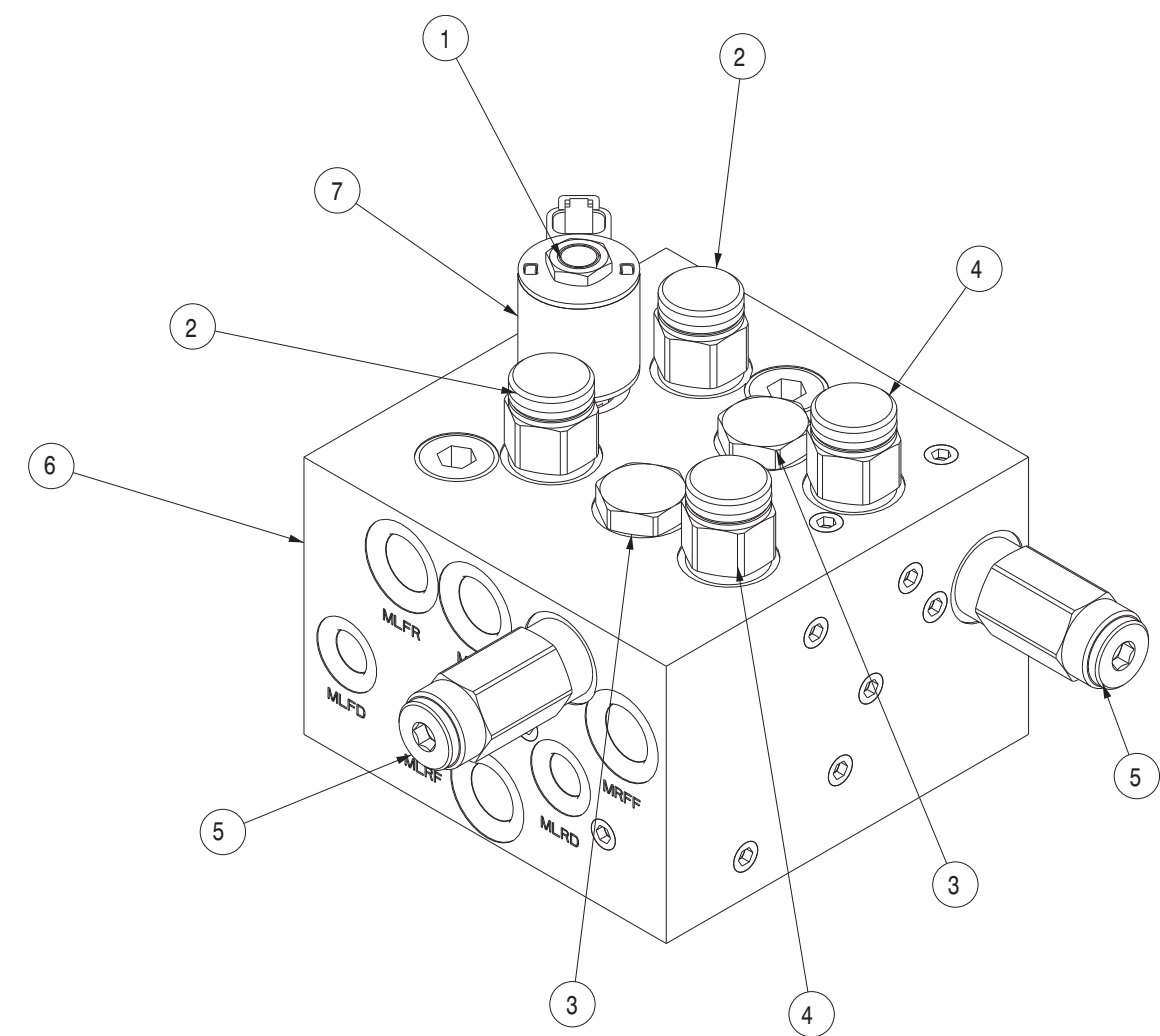
Index	Part Number	Part Description	# Req
1*	7035-002	Hyd Plug- SAE 08 (3/4 Thread)	1
2	10996-2	Test Point- UNO, 9/16	2
3	13779	Manifold- Main SR V4	1
4	100432-002	Hyd Fitting- Straight ORFS(04)-SAE(04)	7
5	100432-004	Hyd Fitting- Straight ORFS(04)-SAE(06)	1
6	100432-009	Hyd Fitting- Straight ORFS(06)-SAE(06)	2
7	100432-027	Hyd Fitting- Straight ORFS(12)-SAE(12)	1
8*	512970-000	Hyd Fitting- Straight ORFS(08)-SAE(08)	6

* Item 8 replaces Item 1 on Bi-Energy machines

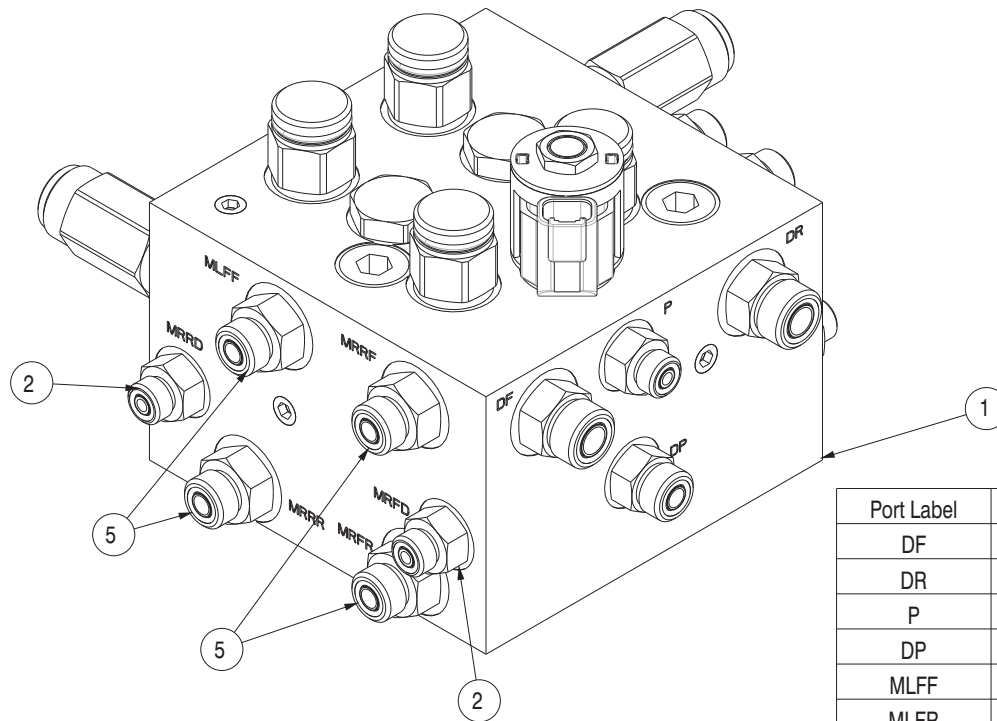
Port Label	Description
BL	Brake, left
BR	Brake, right
AXL	Axle, left
AXR	Axle, right
STR	Return from stabiliser manifold
LCR	Lift cylinder return
TPA	Test point, axle pressure
TP	Test point, system pressure
TANK	Return to tank
DM	Spare port to tank

Port Label	Description
PUMP	Pressure in from pump
PILOT	Pilot to 4wd manifold
STP	Pressure out to stabiliser manifold
LCP	Lift cylinder pressure
DP	Drain from 4wd manifold
SR	Steer, right
SL	Steer, left
DF	Drive, forward
DR	Drive, reverse

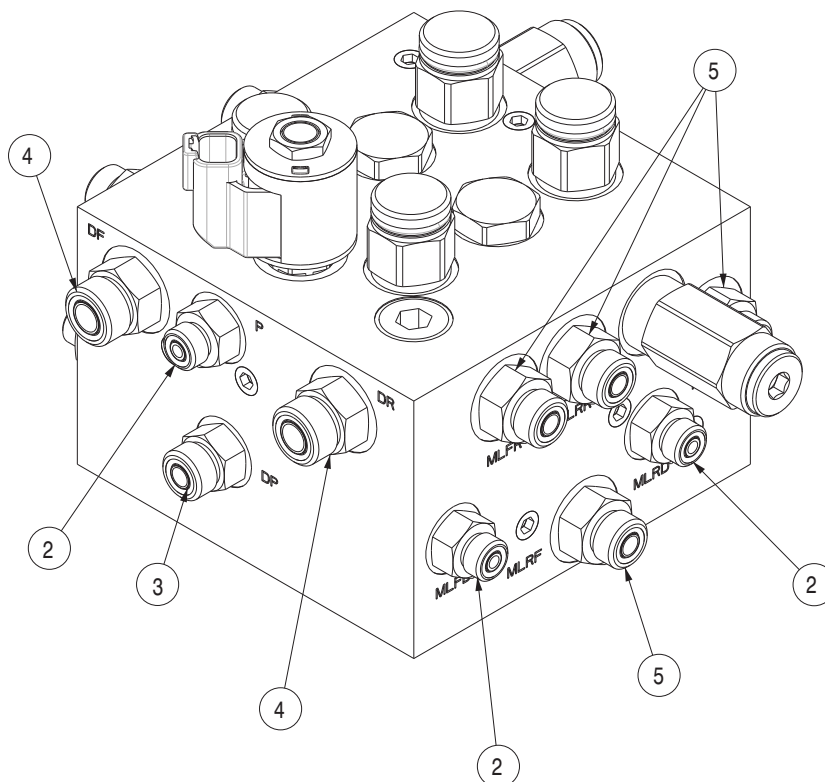
Manifold, 4WD



Index	Cartridge circuit #	Part #	Part Description	# Req
1	1	12567-11	Cartridge, Solenoid- Spool, 3-Way	1
2	2, 9	12569-2	Cartridge- Piloted, 2-Way, Spool NO	2
3	3, 8	12569-3	Cartridge- Flow Divider/Combiner	2
4	4, 7	12569-5	Cartridge- Piloted, 2-Way, Spool NC	2
5	5, 6	12569-6	Cartridge- Relief, Pilot-Operated	2
6		13162	Manifold Block- 4WD SR	1
7		6019180	Coil - 08 12V Deutsch DT Connector	1

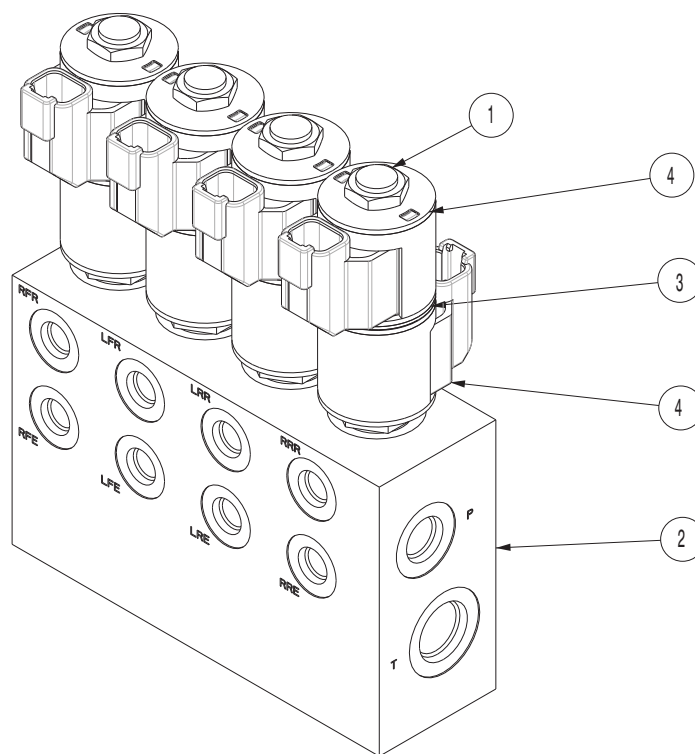


Port Label	Description
DF	Drive Forward
DR	Drive Reverse
P	Pilot
DP	Drain
MLFF	Motor Left Front Forward
MLFR	Motor Left Front Reverse
MLFD	Motor Left Front Drain
MRFF	Motor Right Front Forward
MRFR	Motor Right Front Reverse
MRFD	Motor Right Front Drain
MLRF	Motor Left Rear Forward
MLRR	Motor Left Rear Reverse
MLRD	Motor Left Rear Drain
MRRF	Motor Right Rear Forward
MRRR	Motor Right Rear Reverse
MRRD	Motor Right Rear Drain

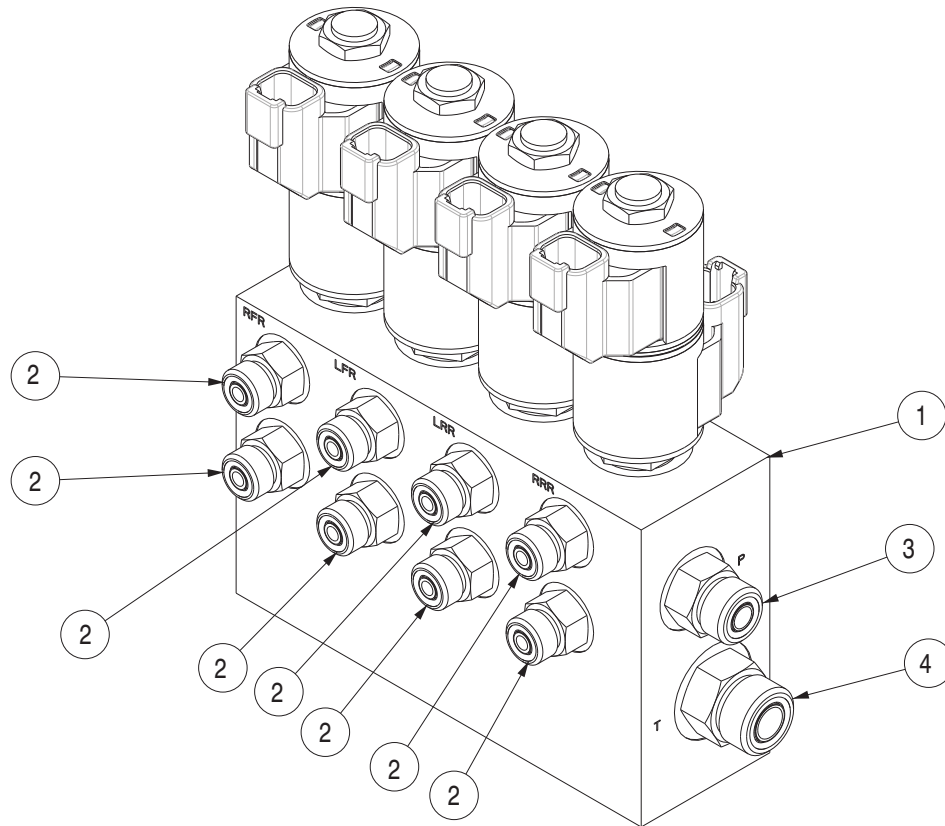


Index	Part Number	Part Description	# Req
1	13780	Manifold- 4WD SR V4	1
2	100432-004	Hyd Fitting- Straight ORFS(04)-SAE(06)	5
3	100432-009	Hyd Fitting- Straight ORFS(06)-SAE(06)	1
4	512970-000	Hyd Fitting- Straight ORFS(08)-SAE(08)	2
5	512980-000	Hyd Fitting- Straight ORFS(06)-SAE(08)	8

Manifold, stabilisers



Index	Cartridge circuit #	Part Number	Part Description	# Req
1	1, 2, 3, 4	12568-1	Cartridge, Solenoid- Spool, 4-Way, 3-Posn, Closed Center	4
2		13781-01	Manifold Block- Stabiliser SR V4	1
3		13881-08	Coil Spacer- 08	4
4		6019180	Coil - 08 12V Deutsch DT Connector	8



Index	Part Number	Part Description	# Req
1	13781	Manifold- Stabiliser SR V4	1
2	100432-002	Hyd Fitting- Straight ORFS(04)-SAE(04)	8
3	100432-009	Hyd Fitting- Straight ORFS(06)-SAE(06)	1
4	512970-000	Hyd Fitting- Straight ORFS(08)-SAE(08)	1

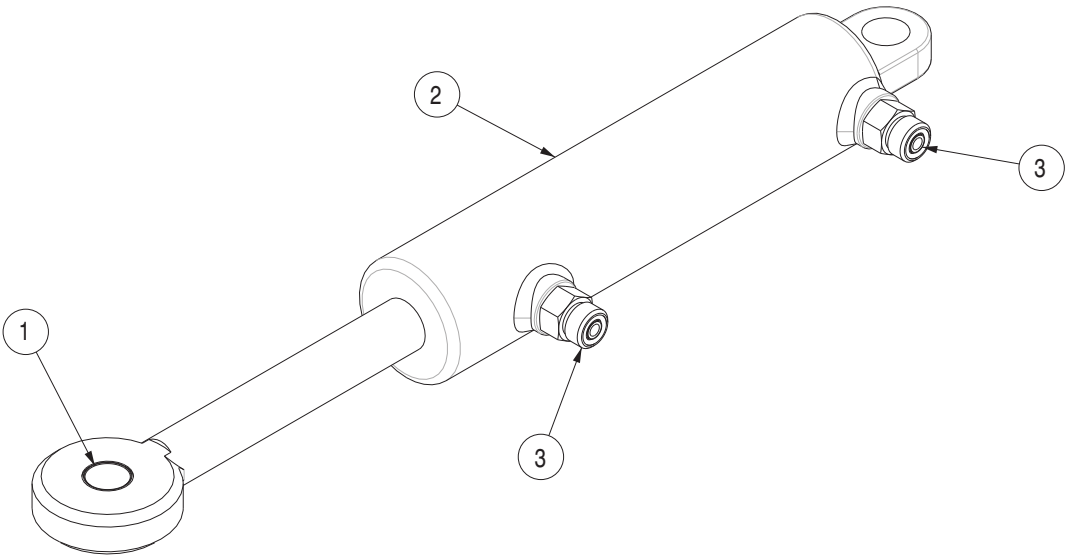
Port Label	Description
P	Pressure in
T	Return to tank
RFR	Right front stabiliser retract
RFE	Right front stabiliser extend
LFR	Left front stabiliser retract
LFE	Left front stabiliser extend
LRR	Left rear stabiliser retract
LRE	Left rear stabiliser extend
RRR	Right rear stabiliser retract
RRE	Right rear stabiliser extend

Hydraulic cylinders and seal kits

NOTE: Cylinders and Seal Kits

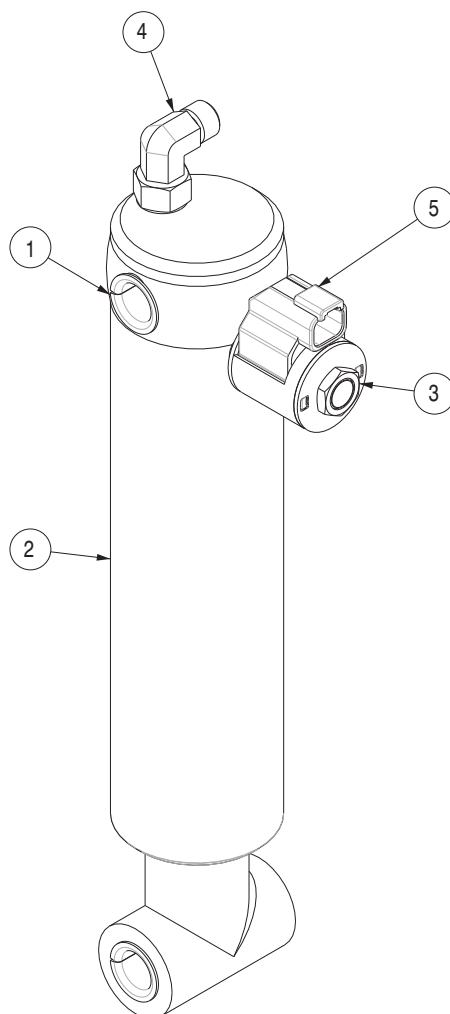
Snorkel has 3 potential manufacturers for it's cylinders, Victor, PB Machine Tech, and United Hydraulics. Each of the manufacturers have different seal kits. You will need to identify which cylinder has been used with your machine and ensure that you order the correct seal kit for your cylinder.

Cylinders can be identified by manufacturers marking. If you are unsure please contact your service provider or the factory.



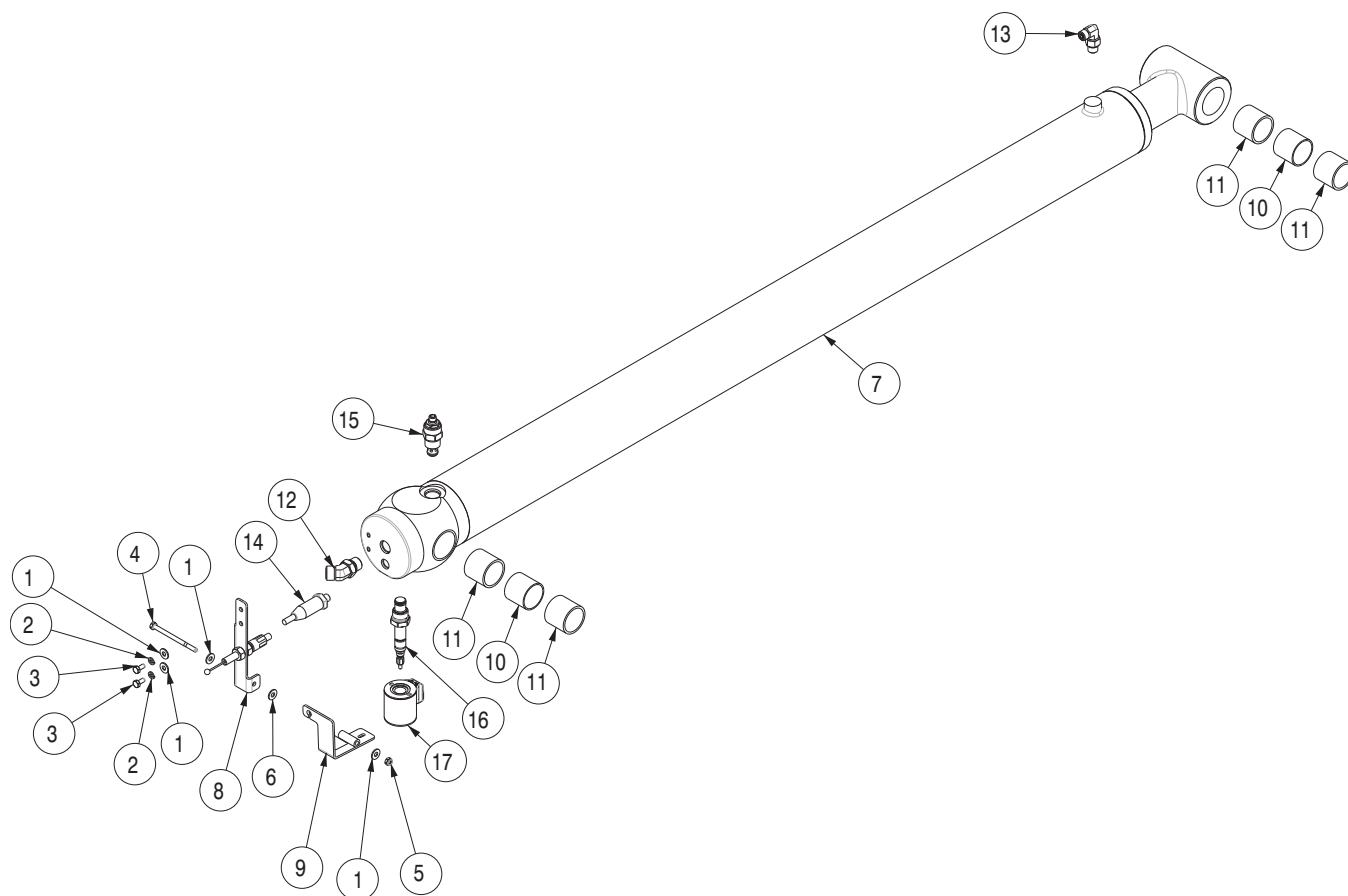
Item	Part No.	Qty.	Description
1	11699A	1	Cylinder Assembly- Steer
	3624-27	1	Permaglide Bush
	11699	1	
2			
3	100432-002	2	Hyd Fitting- Straight ORFS(04)-SAE(04)
	11699K	1	Seal kit- Victor
	11699K-PB	1	Seal kit- PB
	11699K-UH	1	Seal kit- UH

Cylinder, axle



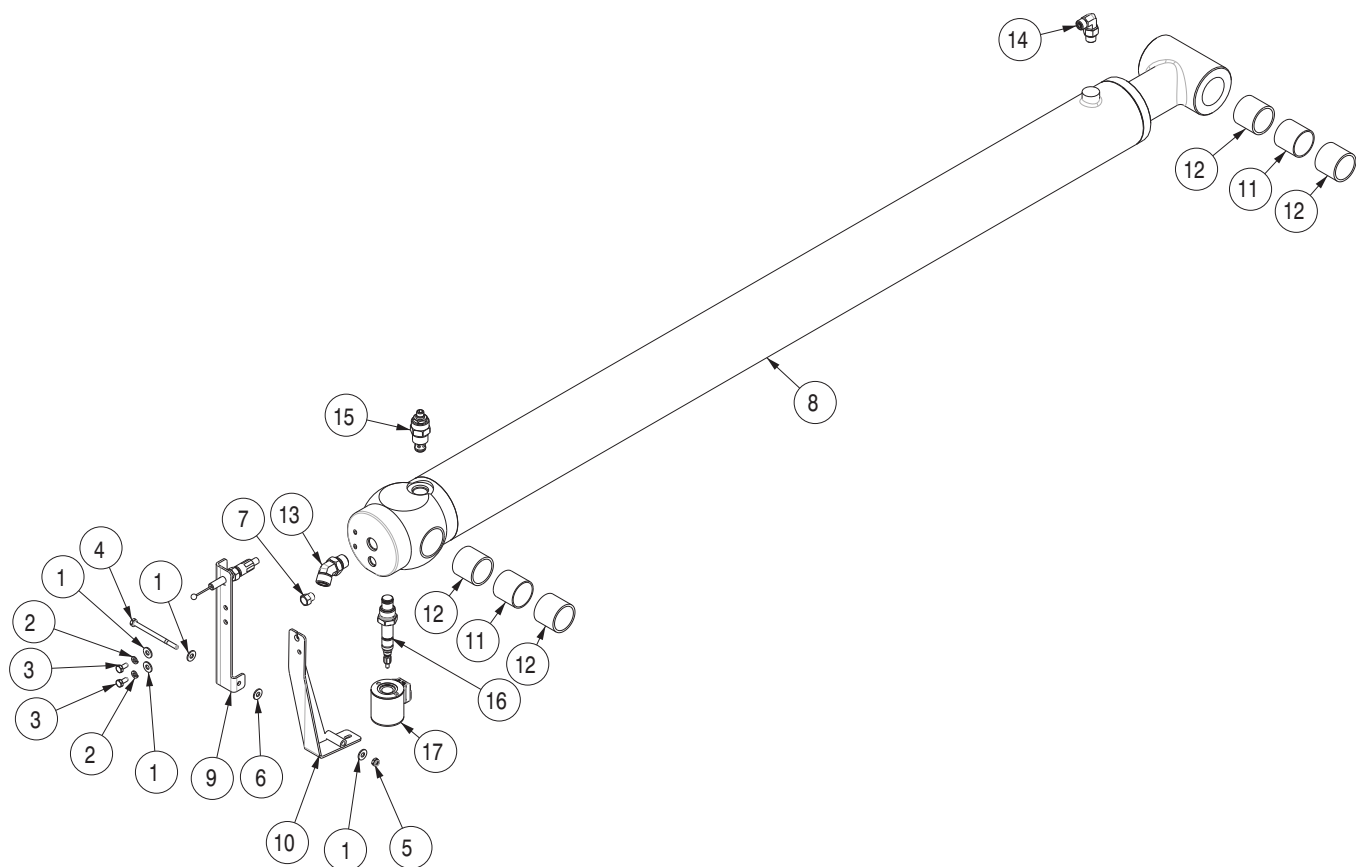
Fitting and coil orientation is identical for the left and right axle cylinders

Item	Part No.	Qty.	Description
	11642A	1	Cylinder Assembly- Axle
1	3626-3	4	Flanged Permaglide Bush
2	11642	1	Axle Cylinder
3	12835-1	1	Cartridge, Solenoid- Poppet, 2-Way, NC
4	100434-004	1	Hyd Fitting- 90 Elbow ORFS(04)-SAE(06)
5	6019180	1	Coil - 08 12V Deutsch DT Connector
	11642K	1	Seal kit- Victor
	11642K-PB	1	Seal kit- PB
	11642K-UH	1	Seal kit- UH

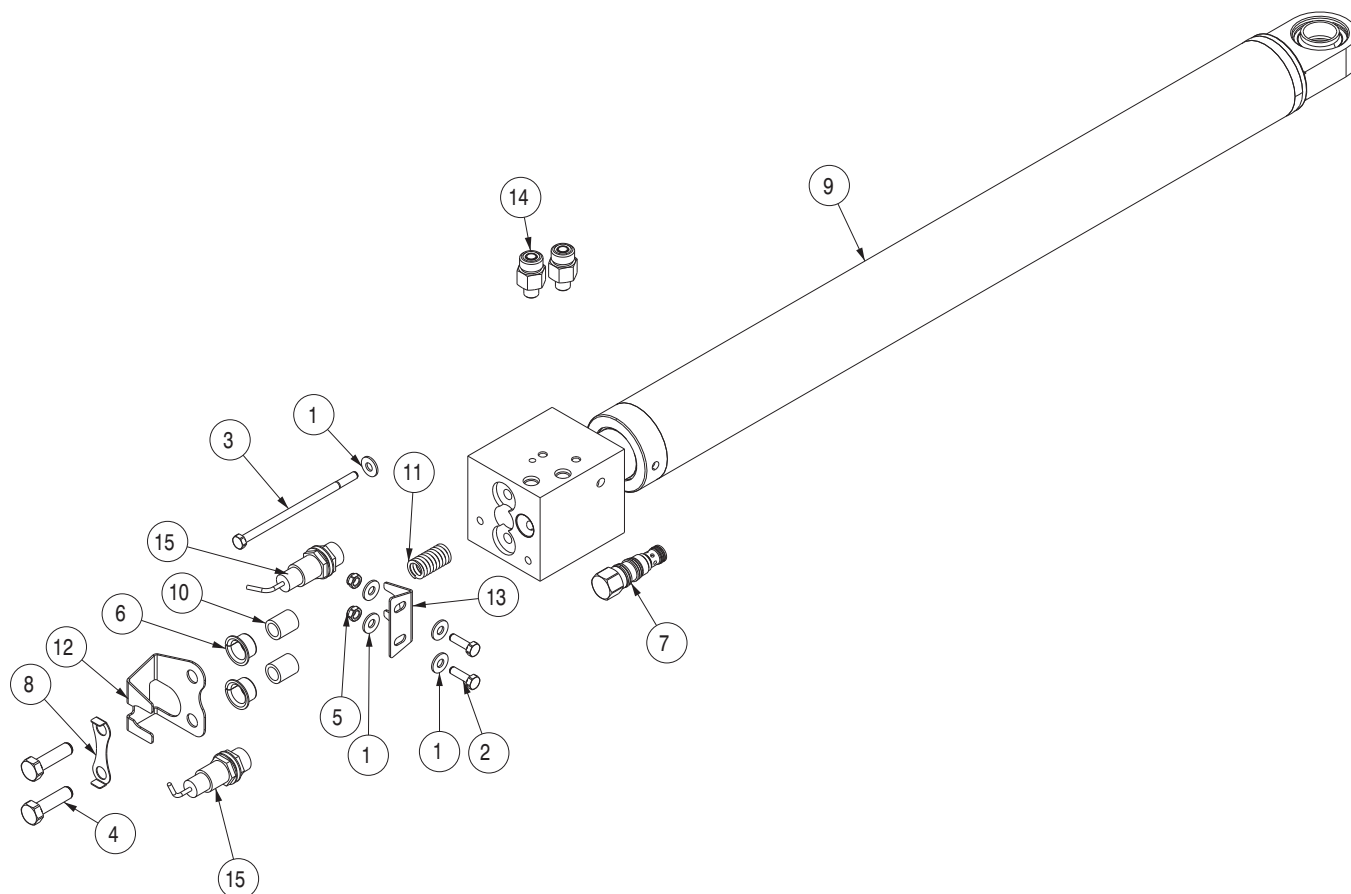


Index	Part Number	Part Description	# Req
1	3603-06	Plain Washer	4
2	3605-06	Spring Washer	2
3	3610-06012	Metric Bolt	2
4	3610-06085	Metric Bolt	1
5	3611-06	Metric Nyloc Nut	1
6	3641-06	Nylon Washer	1
7	11687	SR Lift Cylinder	1
8	12647-1	Cylinder Lever Pivot Plate	1
9	12648		1
10	13907	Bush Spacer- 38.1mm ID x 38.1 Long	2
11	56112-6	Bushing	4
12	100433-008	Hyd Fitting- 45 Elbow ORFS(08)-SAE(08)	1
13	100434-004	Hyd Fitting- 90 Elbow ORFS(04)-SAE(06)	1
14	3030158	Pressure Transducer	1
15	6010833	Valve Cartridge, Adjustable	1
16	6018024	Solenoid Valve, 2 Way, NC, 20V	1
17	6019184	Coil - 10 12V Deutsch DT Connector	1
	11687K	Seal kit Victor	1
	11687K-PB	Seal kit PB	1
	11687K-UH	Seal kit UH	1

Main lift cylinder, upper



Index	Part Number	Part Description	# Req
1	3603-06	Plain Washer	4
2	3605-06	Spring Washer	2
3	3610-06012	Metric Bolt	2
4	3610-06085	Metric Bolt	1
5	3611-06	Metric Nyloc Nut	1
6	3641-06	Nylon Washer	1
7	7035-007	Hyd Plug- SAE 04 (7/16 Thread)	1
8	11687	SR Lift Cylinder	1
9	13221	Cylinder Lever Pivot Plate	1
10	13221-1	Valve Lever	1
11	13907	Bush Spacer- 38.1mm ID x 38.1 Long	2
12	56112-6	Bushing	4
13	100433-008	Hyd Fitting- 45 Elbow ORFS(08)-SAE(08)	1
14	100434-004	Hyd Fitting- 90 Elbow ORFS(04)-SAE(06)	1
15	6010833	Valve Cartridge, Adjustable	1
16	6018024	Solenoid Valve, 2 Way, NC, 20V	1
17	6019184	Coil - 10 12V Deutsch DT Connector	1
	11687K	Seal kit for Victor	1
	11687K-PB	Seal kit for PB	1
	11687K-UH	Seal kit for UH	1

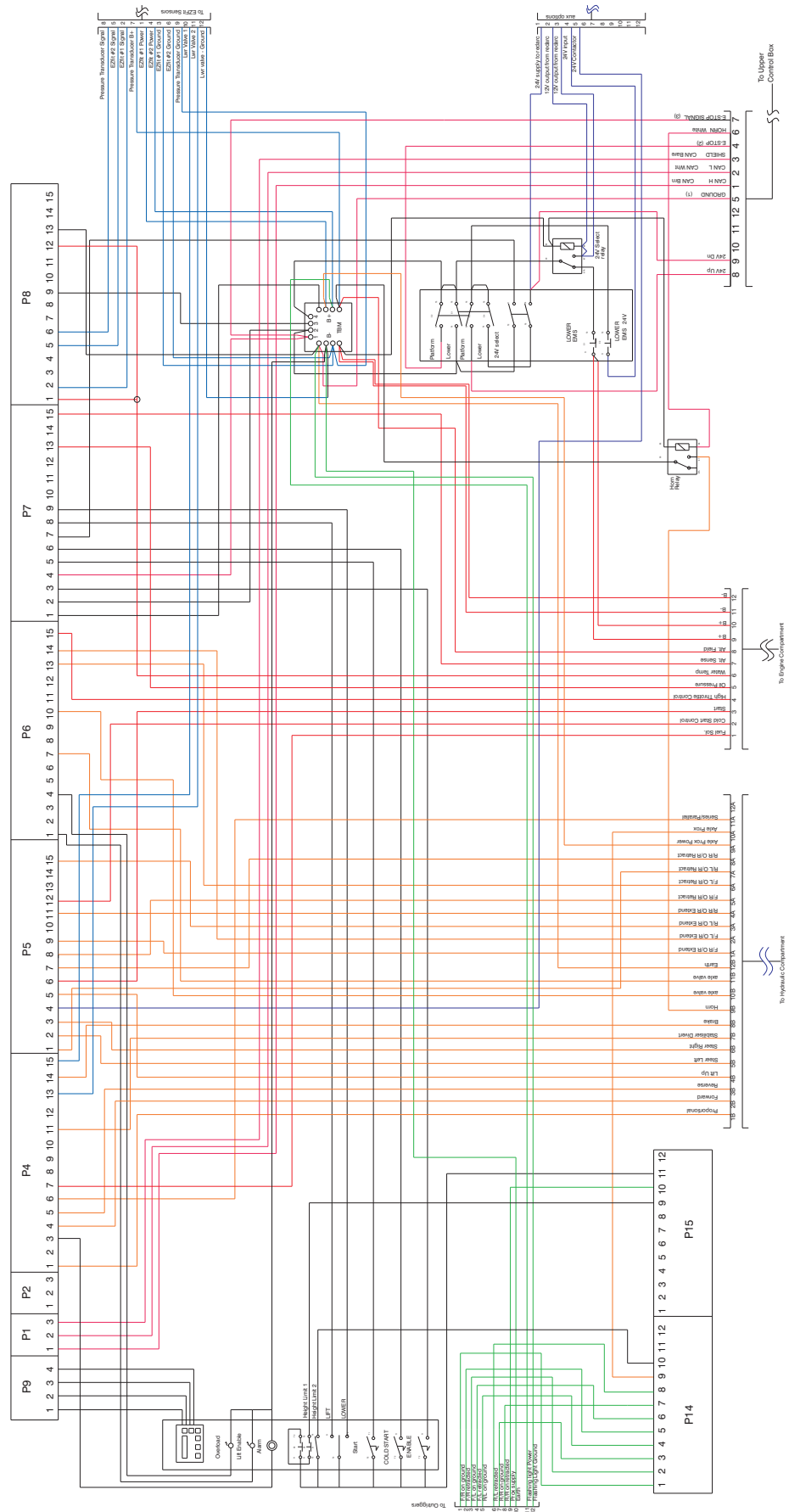


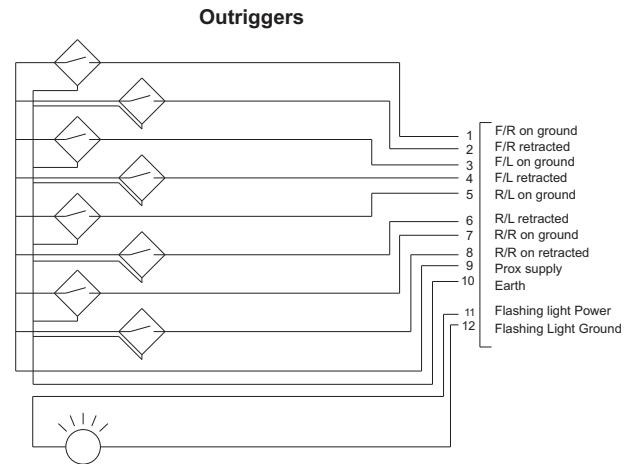
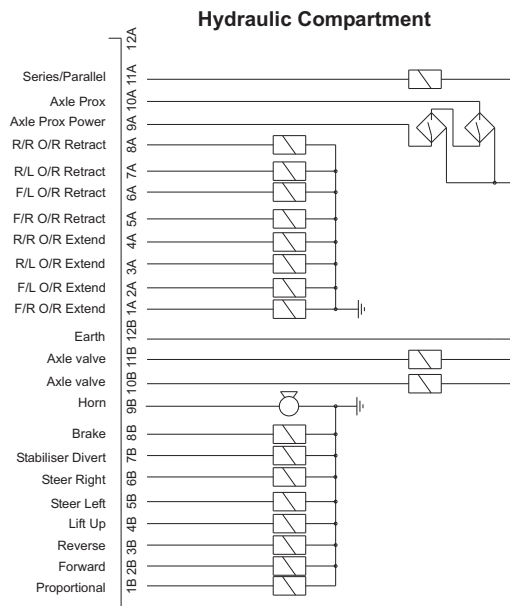
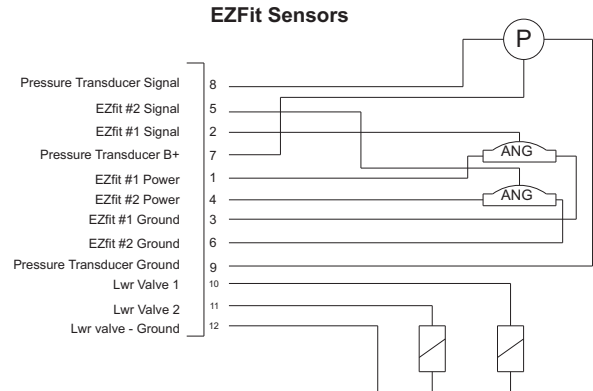
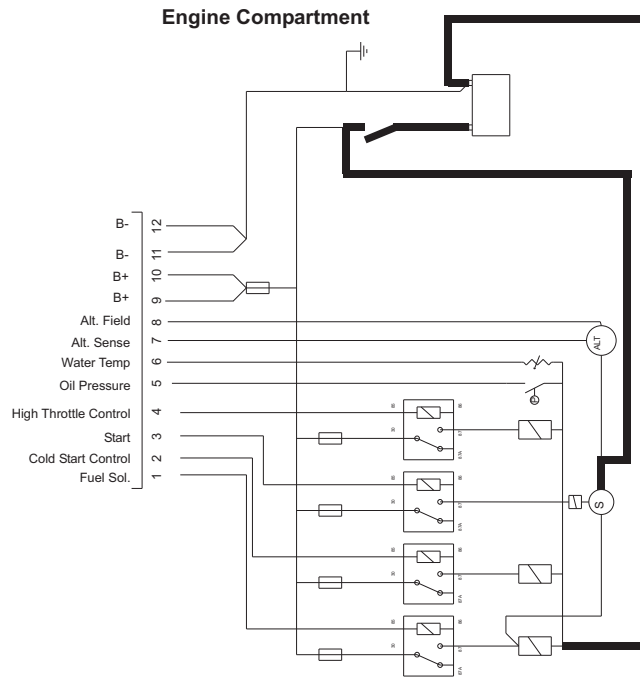
Item	Part No.	Qty.	Description
1	3603-06	5	Plain Washer
2	3610-06020	2	Metric Bolt
3	3610-06120	1	Metric Bolt
4	3610-10035	2	Metric Bolt
5	3611-06	2	Metric Nyloc Nut
6	3626-8	2	Flanged Permaglide Bush
7	11367-2	1	Pilot-to-open check valve with sealed pilot
8	11492-4	1	Lock Tab
9	12036	1	Cylinder- Stabiliser SR
10	12036-5	2	Sliding Spacer
11	12036-6	1	Compression Spring
12	13771-40	1	Prox Bracket, Leg Stowed, SR
13	13771-45	1	Prox Bracket, Leg On Ground, SR
14	100432-007	2	Hyd Fitting- Straight ORFS(06)-SAE(04)
15	505072-000	2	Inductive Prox NO
	12036K	1	Seal kit Victor
	12036K-PB	1	Seal kit PB
	12036K-UH	1	Seal kit UH

Looms	3-2
Electrical schematic, sheet 1 of 3	3-3
Electrical schematic, sheet 2 of 3	3-4
Electrical schematic, sheet 3 of 3	3-5
GP400I/O menu page 1 of 2	3-6
GP400I/O menu page 2 of 2	3-7
GP400I/O allocations.....	3-8
Matrix I/O allocations.....	3-9
Lower control box drawing	3-10
Lower control box assembly	3-11
Platform control box drawing.....	3-12
Platform control box assembly	3-13

Looms

Item	Part No.	Qty	Description
1.	13832	1	Loom-Axle, Sxx70RT V4
2.	13818-01	1	Loom-Control Extn, Sxx70RT V4
3.	13835	1	Loom-Engine D902, Sxx70RT V4
4.	13834	1	Loom-Hydraulic Cabinet, Sxx70RT V4
5.	13878-01	1	Loom Kit-Lower Control Box, Sxx70RT V4
6.	13877-01	1	Loom Kit-Upper Control Box, Sxx70RT V4
7.	13831	1	Loom-Outrigger, Sxx70RT V4
8.	13836	1	Loom-Stack Ezifit, Sxx70RT V4
9.	3649-30	1	Battery Cable-Red 0.23M
S2770RT Only			
10.	13817-02	1	Loom-Control, S27xxRT V4
S3370RT Only			
11.	13817-03	1	Loom-Control, S3370RT V4
12.	13844	1	Loom-Bleed Down Extension, Sxx70RT V4
S3970RT Only			
13.	13817-04	1	Loom-Control, S3970RT V4
14.	13844	1	Loom-Bleed Down Extension, Sxx70RT V4
Bi-Energy Option			
15.	13828	1	Loom Kit-24V, Sxx70RT V4
16.	13827	1	Battery Cable Kit-24V, Sxx70RT





page 3 - 6
Rev A
S3970RT, S3370RT, & S2770RT – 13865-2

ADJUSTMENTS Cont'd	GROUNDMODE ENT	UP DOWN OUT IN ACCEL DECEL	TILT ENT	Xtrip Ytrip DELAYtrip	DELAYclear TILT#2 ENT	OVERLOAD ENT	TRIP@ LAMP@ ALARM@ @HEIGHT SAFE-DOWN DELAYtrip DELAYclear	DRIVE LIFT TILT	ALARMS ENT	HEIGHTS ENT	ELEVATION@ ELEVATION@#2 MAX DRIVE MAX LIFT MAX LIFT#2 MAX LIFT#3 ARMGUARD OVERLOAD SAFE-DOWN	SETUPS	CHANGE DEFAULTS	CALIBRATIONS	SERIAL NUMBER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
												ENT	ENT			ENT	ENT	ENT	ENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
												ENT	ENT			ENT	ENT	ENT	ENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

GP400I/O allocations

Pin	Function
P1-1	CAN1H
P1-2	CAN1L
P1-3	GND

P9-1	RS232 B+ supply
P9-2	RS232 Rx
P9-3	RS232 Tx
P9-4	RS232 Gnd

P4-1	Proportional Valve
P4-2	
P4-3	Ground Alarm
P4-4	Fwd
P4-5	Rev
P4-6	High Speed Valve
P4-7	Fuel run solenoid
P4-8	
P4-9	
P4-10	
P4-11	O/R Function enable
P4-12	
P4-13	Lift down (gravity)
P4-14	Brake release
P4-15	Lift down (gravity)

P5-1	RL up
P5-2	Steer Left
P5-3	Steer Right
P5-4	24V contactor
P5-5	Lift up
P5-6	Start relay
P5-7	RR up
P5-8	FR up
P5-9	FR Down
P5-10	
P5-11	RR down
P5-12	Cold start relay
P5-13	
P5-14	
P5-15	RL down

P6-1	Lift allowed lamp
P6-2	
P6-3	
P6-4	Overload lamp
P6-5	
P6-6	
P6-7	Axle release
P6-8	
P6-9	
P6-10	Axle release
P6-11	
P6-12	
P6-13	FL up
P6-14	FL down
P6-15	"not safe" Throttle

Pin	Function
P7-1	From TBM POS (supply)
P7-2	Ground
P7-3	Enable
P7-4	Platform
P7-5	Start
P7-6	Cold Start
P7-7	24VDC Electric operation
P7-8	Lift UP
P7-9	Lift DOWN
P7-10	
P7-11	
P7-12	
P7-13	Oil pressure
P7-14	
P7-15	Alternator sense

P8-1	Engine Temperature
P8-2	Ezfit #1 input
P8-3	
P8-4	
P8-5	Ezfit #2 input
P8-6	Pressure transducer input
P8-7	
P8-8	
P8-9	From TBM # 3
P8-10	
P8-11	
P8-12	connect to P8-1
P8-13	
P8-14	connect to TBM-
P8-15	

P15-1	
P15-2	
P15-3	
P15-4	
P15-5	
P15-6	
P15-7	
P15-8	
P15-9	Height Limit 1
P15-10	
P15-11	
P15-12	

P14-1	F/R outrigger Down
P14-2	F/L outrigger Down
P14-3	R/R outrigger Down
P14-4	R/L outrigger Down
P14-5	F/R outrigger Up
P14-6	F/L outrigger Up
P14-7	R/R outrigger Up
P14-8	R/L outrigger Up
P14-9	Axle switches
P14-10	Height Limit 2
P14-11	
P14-12	

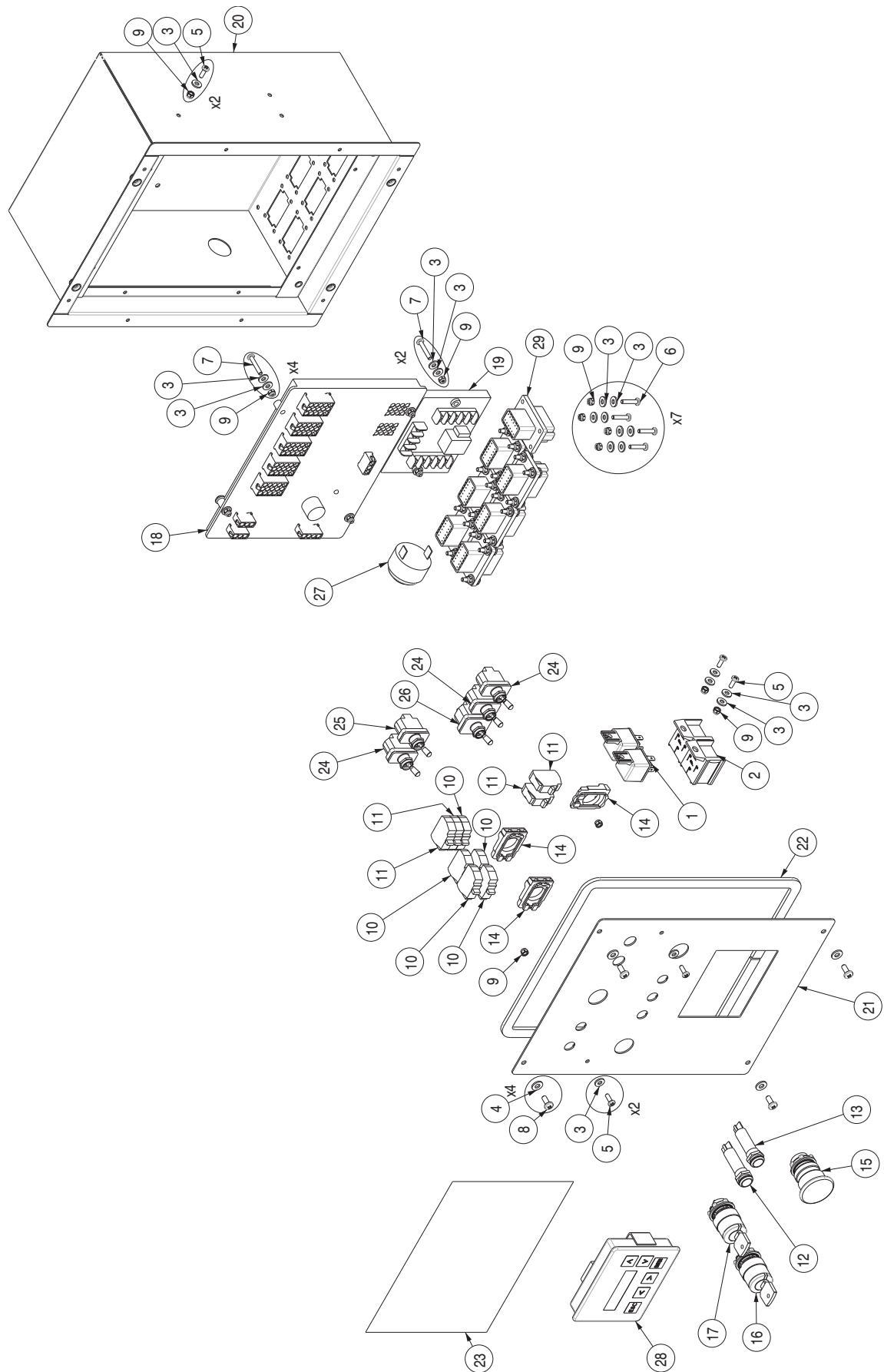
Pin	Function
MP1-1	Platform Mode B+ supply
MP1-2	Ground Mode
MP1-3	CANH
MP1-4	GND
MP1-5	GND
MP1-6	CANL

MP2-1	Engine start
MP2-2	
MP2-3	Steer left
MP2-4	Steer right
MP2-5	Trigger (enable)
MP2-6	Joystick (0.5V-2.5V-4.5V)
MP2-7	
MP2-8	
MP2-9	
MP2-10	Joystick supply
MP2-11	Joystick supply
MP2-12	Switch supply

MP3-1	MP3-1		
MP3-2		MP3-2	
MP3-3			MP3-3
MP3-4	O/R AUTO RETRACT	O/R AUTO EXTEND	
MP3-5	O/R F/R RETRACT	O/R F/R EXTEND	
MP3-6	O/R F/L RETRACT	O/R F/L EXTEND	
MP3-7	O/R R/R RETRACT	O/R R/R EXTEND	
MP3-8	O/R R/L RETRACT	O/R R/L EXTEND	
MP3-9	LIFT SELECT	DRIVE SELECT	
MP3-10		24VDC select	
MP3-11	HIGHSPEED SELECT	COLD START	
MP3-12			MP3-12

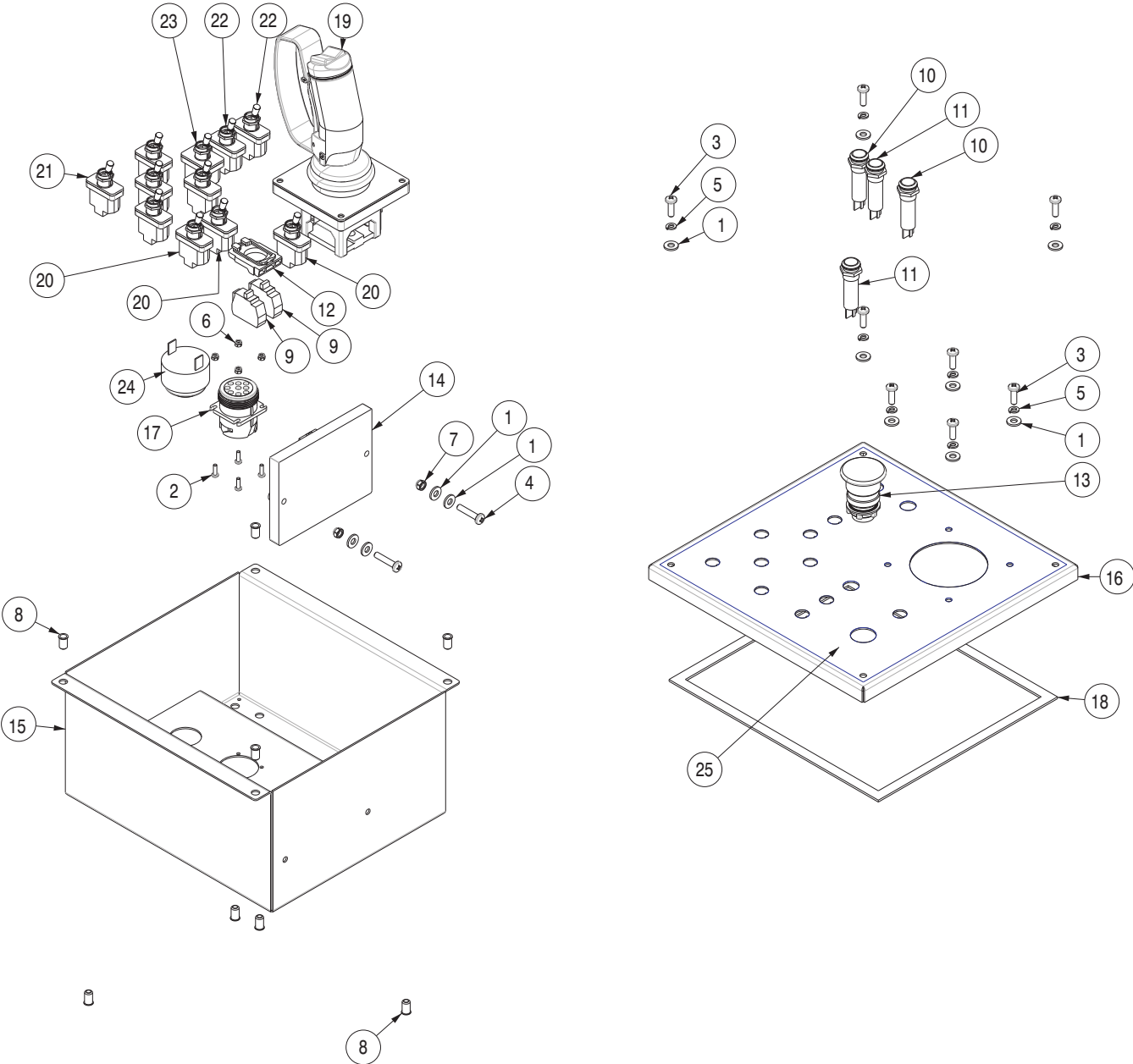
MP4-1	Warning lamp
MP4-2	Lift allowed lamp
MP4-3	Overload lamp
MP4-4	Drive allowed lamp
MP4-5	All alarm
MP4-6	
MP4-7	
MP4-8	
MP4-9	

Lower control box drawing



Item	Part No	Qty	Description
1.	1650-010	2	Relay 12V
2.	2065-002	2	Plugin Relay Base
3.	3603-04	76	Plain Washer
4.	3603-05	4	Plain Washer
5.	3604-04012	6	Metric Screw Pan Head
6.	3604-04020	28	Metric Screw Pan Head
7.	3604-04025	6	Metric Screw Pan Head
8.	3604-05012	4	Pan Head Screw M5 x 12
9.	3611-04	40	Metric Nyloc Nut
10.	10114	5	Contact, NO
11.	10118	4	Contact, NC
12.	12536-3	1	LED - Green, 12V M12
13.	12536-4	1	LED - Red, 12V M12
14.	12914-10	3	Collar
15.	12914-12	1	E-Stop - 40mm, Pull Release
16.	12914-13	1	Key Switch - 1- (2) - 3, 455 Key
17.	12914-17	1	Key Switch - (1) - (2) - (3), 421E Key
18.	13485-01	1	Trionics - GP400C
19.	13485-03	1	Trionics - TBM
20.	13810	1	Control Box Weld
21.	13810-5	1	Control Box - Face Panel
22.	13811-1	1	Foam Seal
23.	13839-01	1	Decal - Lower Control Box
24.	3020015	3	Switch, Toggle
25.	3020016	1	Switch, Toggle
26.	3020097	1	Switch, Toggle
27.	3040411	1	Alarm Buzzer
28.	3087803	1	Ezcal Panel - Trionics
29.	13815-12	7	Recepticle, DT 12 way

Platform control box drawing



Item	Part No	Qty	Description
1.	3603-05	12	Plain Washer
2.	3604-03010	4	Machine Screw
3.	3604-05016	8	Machine Screw
4.	3604-05025	2	Pan Head Screw M5 x 12
5.	3605-05	8	Spring Washer
6.	3611-03	4	Metric Nyloc Nut
7.	3611-05	2	Metric Nyloc Nut
8.	3628-05	8	Nutsert - M5, Steel ZP
9.	10118	2	Contact, NC
10.	12536-3	2	LED - Green, 12V, M12
11.	12536-4	2	LED - Red, 12V M12
12.	12914-10	1	Collar
13.	12914-11	1	E-Stop - 40mm, Pull Release
14.	13485-02	1	Trionics - Matrix
15.	13808	1	Control Box Base - Upper, SR V4
16.	13808-01	1	Control Box Lid - Upper, SR V4
17.	13847-996	1	Receptacle, Flanged, 9 Way
18.	13862	1	Foam Strip
19.	13888	1	Joystick - 1 axis, Deadman guard
20.	3020015	3	Switch, Toggle
21.	3020016	5	Switch, Toggle
22.	3020080	2	Switch, Toggle
23.	3020097	1	Switch, Toggle
24.	3040411	1	Alarm Buzzer
25.	13838-01	1	Decal, upper control box

AC240V at base. 4-2

AC240V at Platform 4-3

. 4-4

24Volt DC Option. 4-5

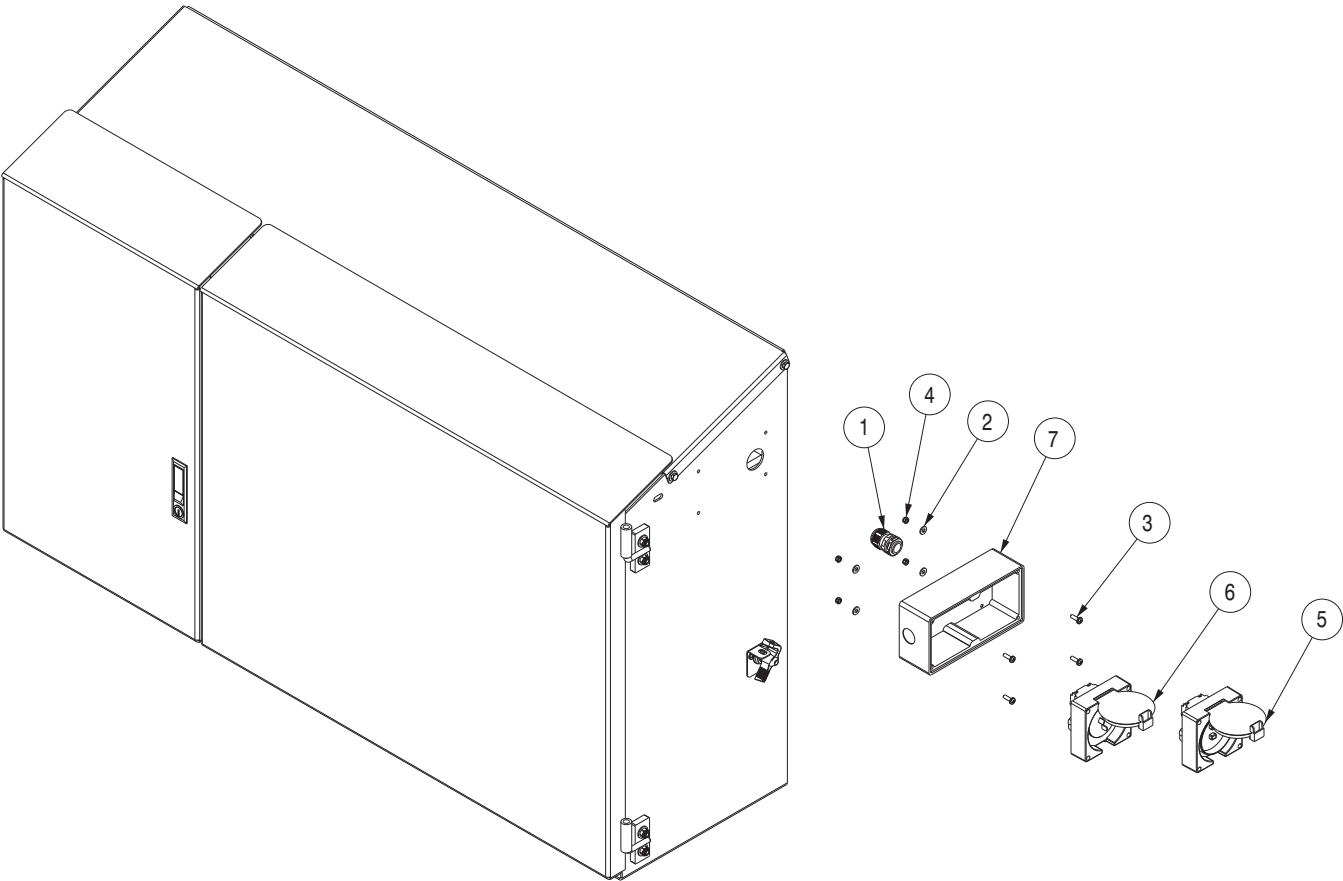
24VDC option drawing. 4-6

24VDC option. 4-7

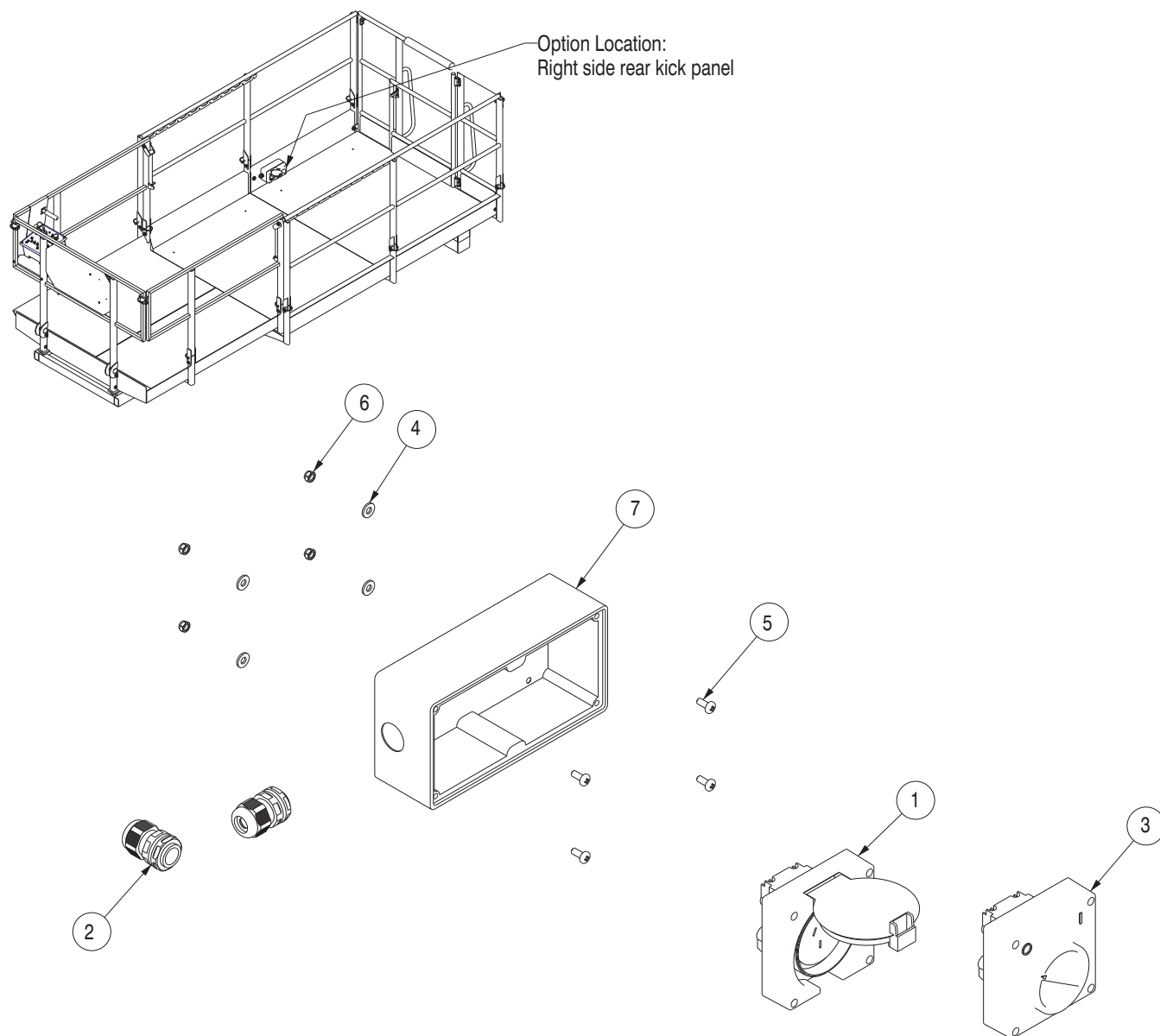
24VDC cabinet drawing. 4-8

24VDC cabinet. 4-9

24VDC battery box mounting 4-10

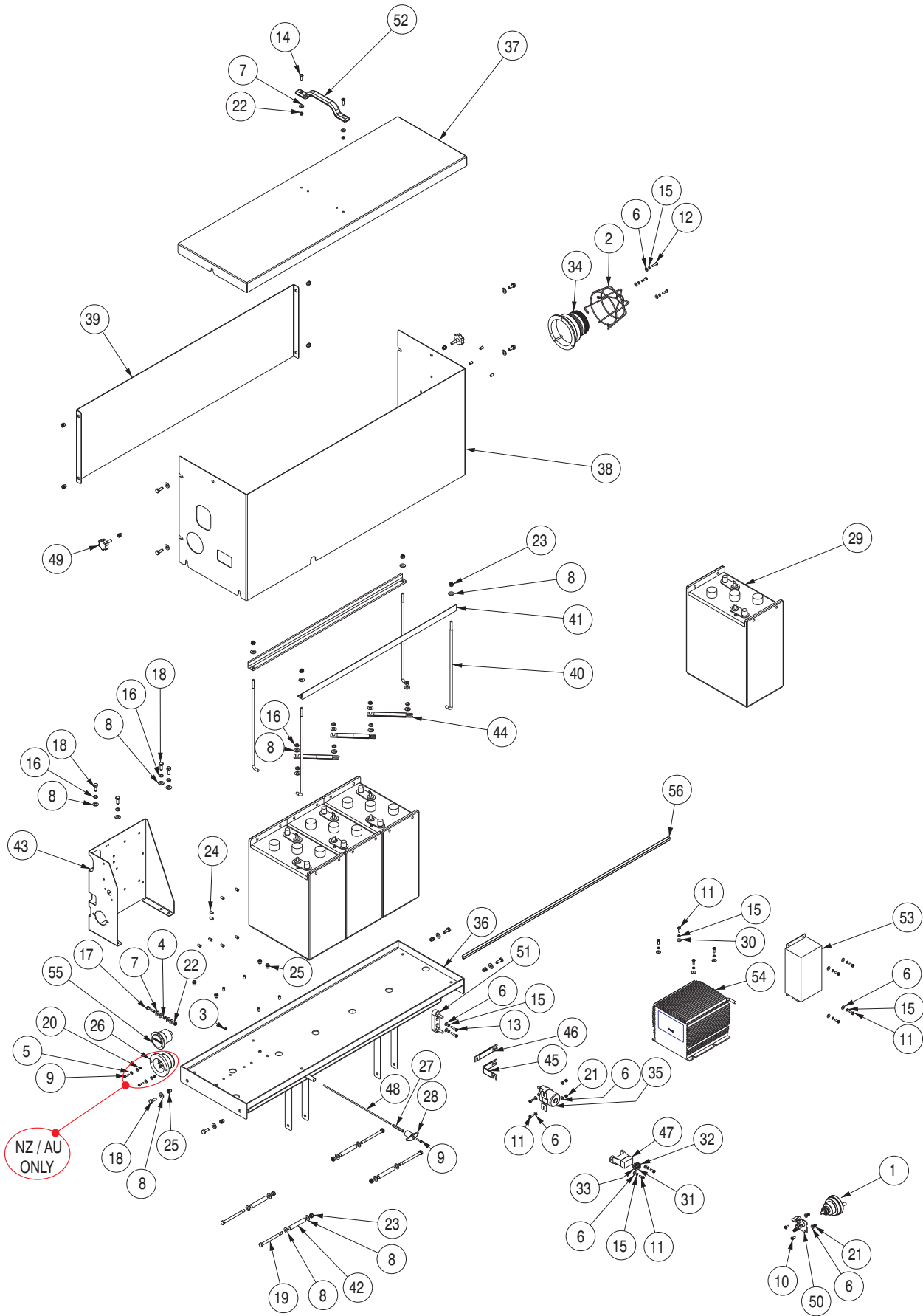


Item	Part No.	Qty.	Description
1	1814	1	Cable Gland
2	3603-05	4	Plain Washer
3	3604-05016	4	Machine Screw
4	3611-05	4	Metric Nyloc Nut
5	10967-1	1	R.C.D
6	10967-2	1	Appliance Inlet
7	10967-3	1	PDL Enclosure

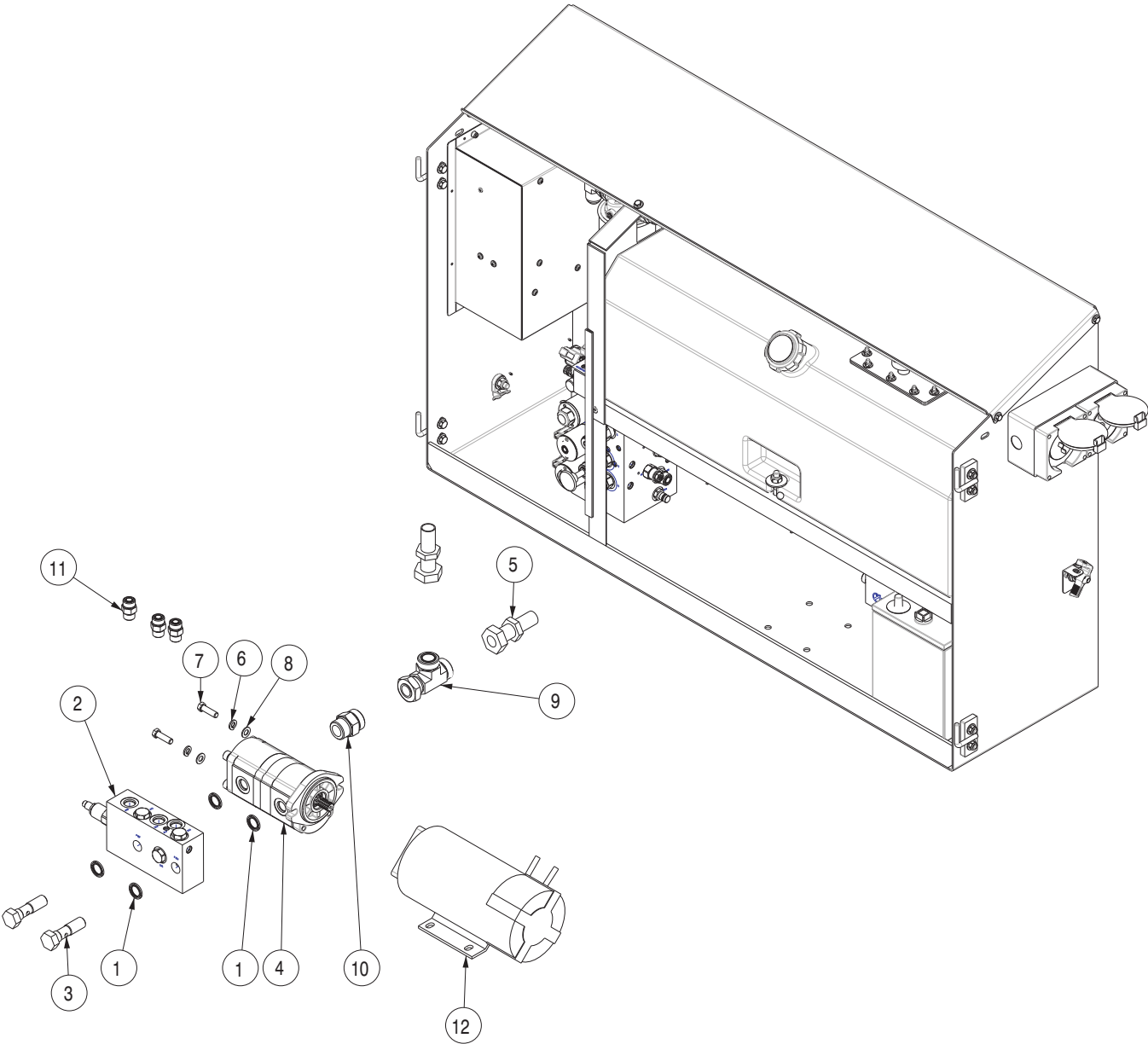


Item	Part No.	Qty.	Description
1	1807	1	Appliance Outlet
2	1814	2	Cable Gland
3	1865-001	1	PDL Switch
4	3603-05	4	Plain Washer
5	3604-05012	4	Pan Head Screw M5 x 12
6	3611-05	4	Metric Nyloc Nut
7	10967-3	1	PDL Enclosure

24VDC option drawing

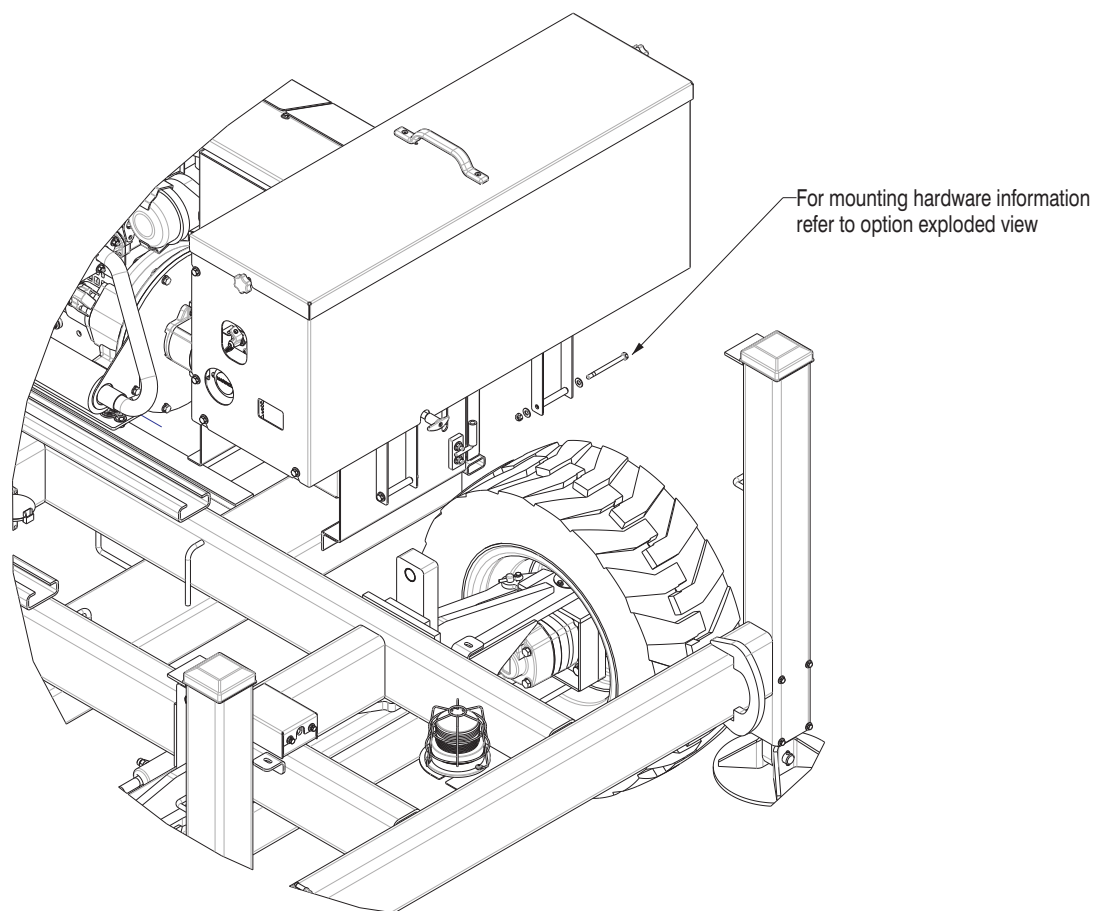
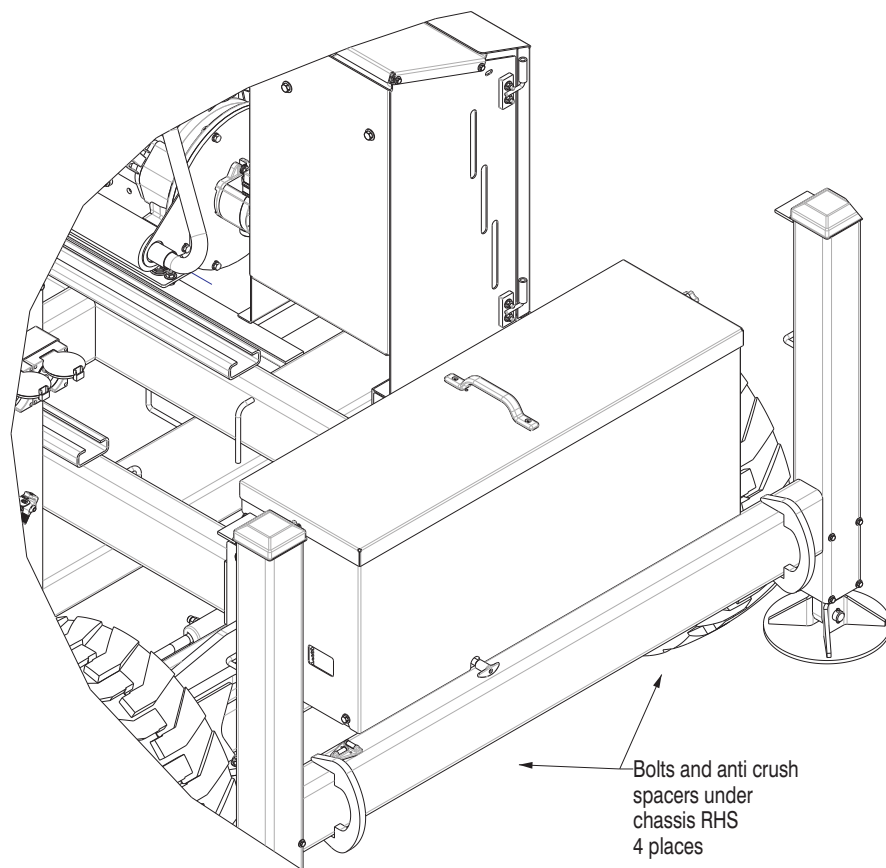


Item	Part No	Qty	Description
1.	302-0049	1	Switch Battery Disconnect
2.	1866-004	1	Flashing Light Guard
3.	3602-04	2	Metric Hex Nut
4.	3602-06	1	Metric Hex Nut
5.	3603-04	4	Plain Washer
6.	3603-05	17	Plain Washer
7.	3603-06	6	Plain Washer
8.	3603-08	32	Plain Washer
9.	3604-04020	3	Metric Screw Pan Head
10.	3604-05012	2	Pan Head Screw M5 x 12
11.	3604-05016	12	Machine Screw
12.	3604-05020	3	Machine Screw
13.	3604-05025	2	Pan Head Screw M5 x 12
14.	3604-06020	2	Pan Head Screw M6 x 20
15.	3605-05	15	Spring Washer
16.	3605-08	12	Spring Washer
17.	3610-06030	1	Metric Bolt
18.	3610-08020	12	Metric Bolt
19.	3610-08100	4	Metric Bolt
20.	3611-04	2	Metric Nyloc Nut
21.	3611-05	4	Metric Nyloc Nut
22.	3611-06	3	Metric Nyloc Nut
23.	3611-08	8	Metric Nyloc Nut
24.	3628-05	15	Nutsert - M5, Steel ZP
25.	3628-08	14	Nutsert - M8, Steel ZP
26.	9595	1	AC inlet - 230V NZ-AU
27.	12509-50	1	Spacer - M4 Female x 50mm Hex
28.	12726_Handle_Only	1	Bleed Down Pull Handle
29.	13100	4	Battery ("Trojan" J305P)
30.	13525-05	4	Washer - Mini Fender M5
31.	13553-05	1	Fuse, Blade - 5A Tan
32.	13553-20	1	Fuse, Blade - 20A Yellow
33.	13553-40	1	Fuse, Blade - 40A Orange
34.	13580	1	Flashing Light - Amber, LED
35.	13597	1	Contactor - 12V Coil, 200A
36.	13805-10	1	Battery Tray - SR V4
37.	13805-20	1	Lid - Battery Box SR V4
38.	13805-30	1	Wrap Panel - Battery Box
39.	13805-40	1	Panel - Battery Box Rear
40.	13805-50	4	Battery "J" Bolt
41.	13805-51	2	Battery Hold Down Angle
42.	13805-60	4	Crush Spacer
43.	13805-70	1	Battery Box Component Panel
44.	13807-10	3	Busbar, Battery Positive to Battery Negative
45.	13807-20	1	Busbar, Switch to Fuse
46.	13807-30	1	Busbar, Fuse to Contactor
47.	13826	1	Fuse Block - Blade Fuse x 4
48.	13859	1	Extn Rod - Bleed Down SR V4
49.	057727-000	2	Turn Knob - M8
50.	300840	1	Lock Out Lever Asm.
51.	446086	1	Fuse Block
52.	500052-000	1	Handle
53.	510234-000	1	Converter - 24VDC to 12VDC
54.	3050097	1	Battery Charger - 24V Multi Input Voltage
55.	3069521	1	AC Inlet - 110V US ONLY
56.	PCA015_1000	1	Rubber Channel Section



Item	Part No	Qty	Description
1.	7084-004	4	Dowty Seal - 1/2" BSP
2.	13866	1	Manifold - Unloader Valve, SR V4
3.	13867	2	Banjo Bolt - Unloader Valve, SR V4
4.	13868	1	Pump - SAE, 4cc/4cc, CCW, 16-32 9T Spline
5.	13899-1616	2	Hosetail - 16 Hose -> 16 ORFSF
6.	60005-009	2	Spring Washer
7.	60017-028	2	Bolt - UNC 3/8 x 1"
8.	60030-049	2	3/8" Plain Washer
9.	512757-000	1	Tee, Run - 16 ORFSM x 2, 16 ORFSF x 1
10.	512968-000	1	Hyd Fitting - Straight ORFS(16)-SAE(16)
11.	512970-000	3	Hyd Fitting - Straight ORFS(08)-SAE(08)
12.	3087790	1	24VDC Motor

24VDC battery box mounting



G

Gradeability, 2-3, 2-4, 2-5
Ground clearance, 2-3, 2-4, 2-5

I

Insulation rating, 2-3, 2-4, 2-5

L

Lift time, 2-3, 2-4, 2-5

M

Maintenance, 0-9
Maintenance schedules, 0-10
Manual Organization, 0-9
Manual organisation
 See Maintenance information - page 3
Maximum rated axle capacity, 2-3, 2-4, 2-5

N

Nominal working height, 2-3, 2-4, 2-5

O

Overall height, 2-3, 2-4, 2-5
Overall length (with stabilizers), 2-3, 2-4, 2-5
Overall weight, 2-3, 2-4, 2-5

P

Placards and decals installation, 1-41
Platform size, 2-3, 2-4, 2-5

S

Safe working load (main deck), 2-3, 2-4, 2-5
Safe working load (roll out deck), 2-3, 2-4, 2-5
Speed (maximum drive), 2-3, 2-4, 2-5

T

Travelling height, 2-3, 2-4, 2-5
Turning radius (inner), 2-3, 2-4, 2-5
Turning radius (outer), 2-3, 2-4, 2-5

W

Weight, 2-3, 2-4, 2-5
Working height, 2-3, 2-4, 2-5

snorkel

Product Warranty

- 1) Snorkel warrants each new machine manufactured and sold by it to be free from defects in material and workmanship for a period of one (1) year from date of delivery to a Customer. The warranty will apply subject to the machine being operated in accordance with the rules, precautions, instructions and maintenance requirements outlined in the Snorkel Operator and Parts/Service manual.
- 2) Snorkel further warrants the structural components, specifically the mainframe chassis, turntable, booms and/or scissor arms of each new machine manufactured by it to be free from defects in material and workmanship for an additional period of four (4) years. Any such part or parts which, upon examination by the Snorkel Warranty department, are found to be defective will be replaced or repaired by Snorkel through its local Authorised Dealer. The structural warranty specifically excludes adverse affects on the machine structure arising from damage, abuse or misuse of the equipment.
- 3) Machines may be held in an authorised Distributor stock for a maximum of six (6) months from the date of shipment from Snorkel, before the warranty period is automatically initiated.
- 4) It is the responsibility of the Distributor to complete and return a Pre delivery /Warranty registration, before the act of rental / loan / demonstration of the machine or delivery to an end user.
- 5) The Customer and Dealer shall not be entitled to the benefits of this warranty and Snorkel shall have no obligations here under unless the "Pre-Delivery and Inspection Report" has been properly completed and returned to the Snorkel Warranty department within ten (10) days after delivery of the Snorkel product to the Customer or Dealer's demonstration / rental fleet. Snorkel must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer's rental fleet during the warranty period.
- 6) Any part or parts which upon examination by the Snorkel Product Support Department are found to be defective within the specified warranty period, will be replaced or repaired at the sole discretion of Snorkel, through its local Authorised Distributor, at no charge.
Any parts replaced under warranty must be original Snorkel parts obtained through an authorised Snorkel Distributor unless expressly agreed otherwise in writing and in advance by Snorkel's warranty department.
- 7) All parts being claimed under warranty must be held available for return and inspection upon request for a period of 90 days from date of claim submission, it is necessary that all parts are individually tagged or marked with their part number and the warranty claim number. After 90 days all parts replaced under warranty which have not been returned to Snorkel should be destroyed. Failure to produce parts requested by the Warranty Administrator for inspection within a period of 14 days will result in the claim being automatically rejected in full. Materials returned for warranty inspection must have the following procedure :
 - Carefully packaged to prevent additional damage during shipping
 - Drained of all contents and all open ports capped or plugged
 - Shipped in a container tagged or marked with the RMA number
 - Shipped PREPAID. Any item(s) returned for warranty by any other means maybe refused and returned , unless prior approval is agreed with Snorkel.

snorkel

Product Warranty

8) At the direction of the Snorkel Warranty department, any component part (s) of Snorkel products to be replaced or repaired under this warranty programme must be returned freight prepaid for inspection. An RMA (Returns material authorisation) must be requested from Snorkel Warranty department, a copy to be placed with the returning component part(s)

9) All warranty replacement part will be shipped freight prepaid (standard charge) from the Snorkel Parts Service Department or from the Vendor to Dealer or Customer.

10) All warranty claims are subject to approval by Snorkel Service department. Snorkel reserves the right to limit or adjust claims with regard to defective parts, labour or travel time based on usual and customary guidelines.

REPLACEMENT PARTS WARRANTY

Any part replaced under this limited warranty is not subject to further warranty cover beyond the normal warranty period of the machine upon which the part was installed.

Any replacement parts sold (not delivered under a warranty claim) will be subject to a warranty period of (6) six months from the date of invoice.

Parts held by a Distributor are covered under warranty for a period of (12) twelve months from the date of invoice, provided that those parts have been subject to appropriate storage to prevent damage and deterioration.

CLAIM PROCEDURE

The Snorkel Warranty department must be notified within (48) forty-eight hours of any possible warranty situation during the applicable warranty period. Personnel performing major warranty repair or parts replacement must obtain specific approval by the Snorkel Warranty department prior to performing the warranty repair or replacement.

When a Distributor / Customer perceive a warranty issue to exist the following steps must be adhered to:

- All warranty claims must be submitted within 30 days of the date of the machine repair

- All correspondence in respect of the claim to be on an official Snorkel warranty claim form as supplied by Snorkel's warranty department

- Allocate a warranty claim number to the repair

- Place a purchase order for genuine Snorkel replacement parts

- Snorkel to dispatch parts via the requested method (in line with the required response time)

- Confirmation that a qualified technician is available to replace the part and that this person has been accepted by Snorkel to carry out such work under the warranty of the machine. Failure to do this may nullify the warranty.

FREIGHT DAMAGE

If a machine is received in a damaged condition, then the damage must be noted on the bill of lading and /or delivery documents and if possible photographs taken, prior to signing acceptance of the consignment.

The freight company must be contacted by the Distributor and a damage claim registered immediately.

snorkel

Product Warranty

THIS WARRANTY EXCLUDES AND SNORKEL DOES NOT WARRANT:

1. Engines, motors, tyres and batteries are manufactured by suppliers to Snorkel, who furnish their own warranty. Snorkel will, however, to the extent permitted; pass through any such warranty protection to the Distributor / Customer.
2. Any Snorkel product which has been modified or altered outside Snorkel factory without Snorkel written approval, if such modification or alteration, in the sole judgment of Snorkel Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Snorkel product or any component thereof.
3. Any Snorkel product which has been subject to misuse and abuse, improper maintenance or accident. "Misuse" includes but is not limited to operation beyond the factory-rated load capacity and speeds. "Improper maintenance" includes but is not limited to failure to follow the recommendations contained in the Snorkel Operation, Maintenance, and repair Parts Manuals.
4. Normal wear of any Snorkel component part(s). Normal wear of component parts may vary with the type, application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications
5. Routine maintenance, routine maintenance items and minor adjustments are not covered by this warranty, including but not limited to hydraulic fluid, filters and lubrication, paint and decals.
6. Any Snorkel product that has come into direct contact with any chemical or abrasive material.
7. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits, expenses or increased cost. This warranty is expressly in lieu of all other warranties, representations or liabilities of Snorkel, either expressed or implied, unless otherwise amended in writing by Snorkel
8. Snorkel Warranty policy does not cover any duties, taxes, environmental fees including without limitation, disposal or handling of tyres, batteries and petrochemical items.
9. Item specifically excluded are, fuel injectors, motor brushes, glow plugs, contactor tips and springs, oil filters, lamp bulbs, lamp lenses, o rings, coolants, lubricants and cleaning material.
10. Failure of replacement parts due to fault misdiagnosis or incorrect fitting by the Distributor / Customer

**SNORKEL MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY
SNORKEL MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE
AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT
LIMITED TO INJURY TO PERSONS OR PROPERTY.**

The Customer shall make all warranty claims through its local Authorised Dealer and should contact the Dealer from whom the Snorkel product was purchased for warranty service. Or, if unable to contact the Dealer, contact the Snorkel Service Department for further assistance

snorkel

Product Warranty

APPEAL

The buyer may appeal in writing against a rejected or adjusted claim to Snorkel warranty department within a period of 21 days of receiving the rejection or adjustment notice. The appeal should be grounded on express reasons and supported by relevant evidence. Appeals received outside of this time limit will not be considered.

WARRANTY SCHEDULE

Limited Warranty Periods

<u>Item</u>	<u>Warranty Period</u>
New machine materials and workmanship	1 year parts replacement
Structural components (Chassis, Turntable, Booms, Scissors)	5 years parts replacement or repair
Parts held in a Distributor's stock	12 months from date of invoice
Parts sold (non warranty)	6 months from date of invoice
Batteries	6 months from warranty registration date
Other specifically excluded parts: Fuel injectors Motor brushes Glow plugs Contactor tips and springs Oils Filters Lamp bulbs Lamp lenses 'O' rings Coolants Lubricants Cleaning materials	Not covered by Warranty

**Local Distributor / Lokaler Vertiebs Händler / Distributeur local
El Distribuidor local / Il Distributore locale**

**EUROPE, MIDDLE EAST
AFRICA & ASIA**

PHONE: +44 (0) 845 1550 057
FAX: +44 (0) 845 1557 756

NORTH & SOUTH AMERICA

PHONE: +1 785 989 3000
TOLL FREE: +1 800 255 0317
FAX: +1 785 989 3070

AUSTRALIA

PHONE: +64 2 9725 4000
FAX: +64 2 9609 3057

NEW ZEALAND

PHONE: +64 6 3689 168
FAX: +64 6 3689 164

