

1. SERVICE MODULES

Kador Service Modules comply with all relevant NSW, Qld industry and Australian standards.

The tank design provides a range of chamber configurations. Those in the table below are for a typical service module to fit a Cat 773 or Komatsu HD465-7 truck:

Product	Capacity (litres UNO)	Dispensing Rate (litres/min UNO)
Diesel	28,000	1000 h/v 400 m/v 70 l/v
Oil 1	4,000	50
Oil 2	2,000	30
Oil 3	1,000	30
Oil 4	1,000	30
Oil 5	1,000	30
Oil 6	1,000	30
Waste Oil	2,000	50
Coolant	1,000	30
Grease	1,000 kg	8 kg/min@50psi 1.5 kg/min@5000psi
Water	1,000	50
Truck Dam	250	
Detergent/Degreaser	250	

Other configurations can be provided for a range of truck sizes and OEMs

2. HYDRAULICS

The hydraulic reservoir will be incorporated in the body and fitted with:

- A sightglass with temperature gauge
- A Banlaw AUS27W receiver and cap.
- A filtered filler breather cap.
- A low level switch

The hydraulic system will comprise:

- A “Y” strainer on the outlet of the hydraulic tank to protect the hydraulic pump.
- A variable displacement load sensing hydraulic pump rated to allow the operator to run three products simultaneously.
- From the hydraulic pump, the hydraulic oil will be directed via a 10 micron absolute filter pressure to its respective control valve. This will greatly increase the reliability of the control valves.
- Two electrically operated hydraulic control valve banks: one valve bank will operate the product pumps the other will operate the hose reel rewinds. Each valve bank will be located in the same locker that the operating equipment is located.
- The hydraulic control valve will be the Danfoss PVG32 valve. Each valve section will be set up to allow for speed control so that speed requirements of each motor can be set. This means on each valve we can set the flow rate requirements for the A port and set a different flow rate on the B port. The speed adjustments are easy to do thus allowing changes to be made to the settings by maintenance staff if required.

- The hose reel rewind hydraulic bank will be fitted with integral solenoids that will act as hydraulic hose reel locks. These locks will stop the hose reels from unwinding once the rewind control on the control panel is released.
- A flow compensator will be fitted into the hydraulic circuit. This will be used to amplify the load sensing signal to eliminate any delays between operating the control valve and the starting the respective function.
- Test points will be fitted on each control valve to aid in fault finding.

3. DISPENSING SYSTEMS

3.1 Diesel

The diesel tank will be fitted with:

- A Stauff filtered breather.
- Suitable level gauges
- An overfill probe fitted in the top of the tank, and an electrically operated ball valve to shut down the filling procedure when the product level reaches the probe

The High Volume dispensing system will comprise:

- 100NB pipe work running from the tank outlet to the pump inlet via a Liquip 100NB butterfly valve and a strainer.
- An Ebsray V30 pump coupled to a hydraulic motor via a drive coupling.
- 80NB outlet pipe work to a LC M15 positive displacement meter and 80NB pipe work and a flexible hose connected to the hose reel inlet.
- A hydraulic rewind hose reel will be fitted with 15 metres of 50NB hose and a swivel and a Banlaw BPM1000 nozzle.
- The dispensing rate at the nozzle will be 1000 lpm.

The Medium Volume dispensing system will comprise the first three items from the High Volume dispensing system but connected to:

- A hydraulic rewind hose reel will be fitted with 15 metres of 40NB hose and a swivel and a Banlaw BPJN800 nozzle
- The dispensing rate will be 400 lpm at the nozzle.

The Low Volume dispensing system will comprise the first three items from the High Volume dispensing system but connected to:

- A hydraulic rewind hose reel fitted with 15m of 25NB hose with a nozzle and swivel.
- The dispensing rate will be 70 lpm at the nozzle.

3.2 Six off Oils

Each oil system will comprise:

- A tank fitted with a Banlaw AUS27W receiver and cap
- A suitable sight gauge,

The dispensing system will comprise:

- 40NB isolation ball valve.
- 40NB pipe work into the pump suction.
- The pumps will be commercial close-coupled hydraulic pump / motor sets rated at 50 or 30 lpm as required
- Hydraulic control valves will allow adjustment of the flow rates of each oil to suit their requirements. Each product pump will be fitted with a built in pressure relief valve. The main function of the relief valve is to bypass oil when the delivery nozzle is shut

- A hydraulic rewind hose reel. The reel will be fitted with 15metres of 20NB hose complete with a Lincoln 775 control valve and Banlaw AUS29W ends

3.3 Grease

The dispensing system will comprise:

- A Lincoln hydraulically driven grease pump mounted directly into the grease manifold to supply high pressure grease
- Suitably rated hose will be piped from the pump to the inlet of the hose reel
- A hydraulic rewind reel fitted with 20 metres of 10NB four wire braided hose with a Lincoln 740 control valve.
- A second Lincoln hydraulically driven grease pump mounted directly into the grease manifold to supply bulk grease
- A hydraulic rewind reel fitted with 20 metres of 20NB hose with a suitable control valve.

3.4 Coolant

The dispensing system will comprise:

- An isolation valve located on the outlet of the tank.
- 25NB pipe work to the pump suction. A 25NB 'Y' suction strainer will be fitted prior to the pump
- A hydraulically driven 15NB bronze gear pump
- A hydraulic rewind hose reel fitted with 15 metres of 20NB hose and a control valve.
- Flow rate 30 lpm.

3.5 Low Pressure Water

The dispensing system will comprise:

- An isolation valve located on the outlet of the tank.
- 25NB pipe work to the pump suction. A 25NB 'Y' suction strainer will be fitted prior to the pump
- A hydraulically driven 20NB bronze gear pump
- A hydraulic rewind hose reel fitted with 15 metres of 20NB hose and a control valve.
- Flow rate 50 lpm.

3.6 Waste Oil

The dispensing system will comprise:

- An Ebsray hydraulically driven gear pump
- A hydraulic rewind hose reel fitted with 10m of 25NB hose with a Banlaw nozzle at the end
- An overfill probe and warning system to indicate that the waste oil tank is full. The overfill probe will shut the waste oil pump down once the tank is full
- The flow rate will depend on the viscosity of the product being evacuated

4. ELECTRICS

The electrical system will comprise:

- Switches in the cabin for switching on the exterior work lights. Supply and fit switches to:
 - Operate locker lights,
 - Operate driver's-side work lights,
 - Operate kerb-side work lights

- Access stairway lighting
- Supply and fit resettable circuit breakers for all new wiring.
- Supply and fit fluorescent lighting for all the lockers fitted including the hose reel cabinets. The fluorescent lights will be mounted using Stauff clamps
- Supply and an emergency stop button, located near in the hose reel cabinet. This button will disengage the hydraulic system. Lighting will be left on
- Supply and fit interlocks so that the hydraulics cannot be operated without the park brake being applied and the gearbox in neutral
- Supply additional LED stop, tail and indicators to the top rear of the module.
- Supply and fit three Hella 1535 (Xenon) work lights down each side of the body.
- A rotating blue light will be fitted to the top - rear of the service module

5. MISCELLANEOUS

Includes:

- A reflective yellow strip shall be installed down both sides of the machine.
- A pressurised sealed eyewash and safety shower
- Labels to all components as assigned by XCN

6. OPTIONS

A range of options and upgrades to the standard specification can be provided if required, including:

- Additional Diesel Pump
- Fuel Monitoring
- Oil Dispensing System Upgrades
- NMI approved meters