



SPECIFICATIONS FOR JET-VAC-NDD SYSTEM

EXTRACTOR

**DCS-466OT-Tipping Body
Combination High Pressure Jetting, Non-Destructive
Digging & Vacuum Recovery System**



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EXTRACTOR JET-VAC-NDD SYSTEM HIGH PRESSURE JETTING WITH VACUUM RECOVERY MODEL: DCS-4660T – Tipping Body Unloading

With ongoing extensive research and consultation with users of jet-vac combination systems, involving leading contractors and government authorities, DCS Manufacturing has developed the Extractor system to meet the demands of the Australian market.

Careful consideration has been taken into account with the design and development for the safety aspects of both operator and the system. Also key has been maintaining simplicity of use combined with low cost maintenance. Another key factor is compliance to Road Traffic Authority regulations.

An extensive range of optional support equipment is available adding to the flexibility and diversity in a variety of maintenance and cleaning tasks.



SPECIFICATIONS

DEBRIS COLLECTOR BODY CAPACITY 8000 Litres

- The collector body is cylindrical constructed in 6mm 316 Stainless steel with 10mm tori spherical ends, one of which is a full opening hinged door with hydraulic locking.
- The body shall be a three-point mounting system allowing for chassis torsional movement.
- Tipping Body- A high capacity hydraulic cylinder raises the body to 50°. Included is a safety prop.
- Incorporated within the tank design is a unique maintenance free dewatering system assisting in achieving maximum payloads are achieved.
- The tank includes a high-level safety shut down system with electronic sensor with isolated backup along with pneumatic controlled isolation valve automatically actuated on vacuum pump on/off modes.

WATER TANKS CAPACITY 6000 LITRES

- The water tanks are Roto moulded high density polypropylene being UV stabilized with excellent strength characteristics.
- Each tank has a 1500 litre capacity in modular type format and four are mounted directly opposite each other encasing the outer side walls of the debris collector body achieving excellent weight distribution over the rear axles.
- The tanks are interconnected and include overflow, inspection vented screwed lids to allow hose cleanout. A quarter turn 75mm drain valve is also included.
- Located on the left hand side approximately 900mm above ground level shall be a 50mm anti-siphon fill pipe fitted with 50mm male cam-lock. Complies to AS3500.1 for the use with hydrants.
- A large visual sight tube with fluoro indicator float fitted at the rear of the unit allows visual inspection of water contents.
- The water tanks are covered by a life time guarantee against corrosion.



BOOM AND HOSE REEL ASSEMBLY

- The boom and hose reel assembly is an overhead type allowing jetting and vacuum operations being performed either simultaneously or individually at any point of the assemblies working radius.
- The assembly has a working rotation of 200° with hydraulic locking.
- The boom features a lift of 3.6 metres and extension of 1.2 metres being hydraulically controlled with counter balance valve for safety.
- A high quality 150mm I.D. rubber suction hose is fitted to the boom with female quick release couplings either end allowing hose rotation and reversing to share general wear and tear thus extending operational life.
- The suction hose connection to the collector body is by a large air backed inlet with two 200mm quick release access blanking ports covers to permit easy access for blockage cleaning.
- A transit storage plug is included permitting securing of the boom hose during transit, complying with EPA regulations.
- The hose reel is fabricated from heavy gauge steel with rolled RHS reinforcement rings with hose outer retaining ring.
- The reel is capable of storing and operating with 182 metres (600 foot) of 25mm thermoplastic type sewer hose.
- Can be hydraulically controlled in both forward and reverse modes and includes free-wheel operation.
- Hose guide rollers are included.
- Hose reel speed controllers for both hose in and out functions are fitted to the main control panel with soft start feature.

WATER PUMP

- The world renowned Pratissoli positive displacement pump model MW45 shall provide the high pressure, high volume water for jetting purposes.
- The pump is rated at 155 bar (2250psi) at 269 litres per minute.
- The pump features speed control to permit variable flow control.
- Two performance values shall be factory pre-set at 155 bar for drain cleaning and 55 bar for hand gun use. Pressure selection is activated by a switch located at the control station.
- The pump high pressure outlet will be fitted with a large capacity pneumatic regulator which features controlled soft start and stop modes thus reducing water hammer and shock.

VACUUM PUMP

- To ensure excellent loading rates at a constant performance a roots type tri-lobe positive displacement vacuum pump shall be installed.
- The vacuum pump shall have a rating of 2,300m³/hr (1,400CFM) at 24" Hg.
- The pump outlet will be fitted with a heavy-duty industrial silencer to reduce noise emission.
- To offer protection to the vacuum pump a cyclone and reusable filter cartridge at 80 micron shall be mounted between the debris tank outlet and the pump.
- Two 75mm safety relief valves are included.

WATER FILTER HIGH PRESSURE PUMP

- As standard, a large aluminium filter shall be fitted to the water pump water line with reusable stainless steel basket to protect the pump from impurities which may find their way into the water supply.
- The water supply side of the filter will include a quarter turn 75mm valve allowing water isolation avoiding tank drainage for filter inspection and cleaning.

DRIVE TRAIN - WATER & VACUUM PUMPS

- The truck engine shall provide the power source for the high pressure water pump, vacuum pump drive and hydraulics.
- A split shaft power take off will be mid mounted between the truck transmission and the differential allowing drive transfer to both water and vacuum pumps.
- The drive transfer from the power take off to the water pump is via universal-driveline shaft with final drive by carbon fibre belt and cogged pulleys for the vacuum pump.
- Both PTO outlets to water pump and vacuum pump are air clutch types allowing engagement and disengagement during cleaning operations.
- A belt guard shall be fitted to the vacuum pump drive.

HYDRAULICS

- A hydraulic pump shall be driven from a split-shaft power take-off for operation of boom and hose reel functions or tipping body and rear door latching.
- The hydraulic reservoir will be chassis mounted with a 175 litre capacity and include filler breather cap, sight gauge, drain plug and 10 micron return line cartridge type oil filter.
- A large capacity hydraulic over air cooler is fitted.
- All hydraulic functions shall be fail safe.
- The hydraulic hose and fittings shall be of high quality all rated well within set pressure values and will be pressure tested.



PUMP COMPARTMENT AND STORAGE

- An enclosed compartment will be located between the truck cabin and collector body/water tank.
- Two heavy section RHS rails shall align with truck chassis and secured with fish plates and in turn channel steel shall form the cross members and combing rails to provide secure mounting of the allied support equipment.
- The floor shall be decked with 5mm checker plate aluminium to ensuring safe access for storage and routine maintenance requirements.
- The compartment walls and roof will be constructed from 40 x 40 RHS with 25 x 25 crossbars and cladded in 3mm composite aluminium sheet.
- Three aluminium roller shutters are fitted to the left hand side of the compartment. One shutter is for access to miscellaneous equipment. The second roller shutter is for operator access to the compartment and features a drop down walk up staircase with grab rail. The third shutter is for security on the main control station.

CONTROLS

The Extractor shall have three key controlled stations being system engagement from driver’s cabin, system functions control via a hand held remote, and a control panel with HMI display located on the passenger side of the system.

Truck cabin controls will be within easy reach of the driver. All functions shall be supported by illuminated control button lights for indication of engagement and the system is fitted with a park brake lockout to prevent accidental engagement while truck is in transit, also exhaust brake is isolated on engagement.

Controls include:

- | | |
|--------------------------|----------------------|
| * System power | * PTO Road/Work Mode |
| * Rotating beacons | * Night work lights |
| * Safety Directional Bar | |

A wireless remote control featuring easy frequency changing. The remote has a failsafe system and offers control over 100 metres away from the ‘Extractor’.

Functions:

- | | |
|-------------------------------|----------------------------|
| * EMERGENCY STOP | * HOSE - IN/OUT |
| * HOSE FREEWHEEL | * BOOM - UP/DOWN |
| * WATER PUMP - ON/OFF | * BOOM - IN/OUT |
| * VACUUM PUMP - ON/OFF | |
| * UNLOADING - TIP DEBRIS TANK | * UNLOCK - OPEN/CLOSE DOOR |

The control panel, which consists of the HMI display, Emergency Stop, and Local/Remote control selector switch, is located on the passenger side of the system. All system functions are controllable via the HMI display.

These include:

Pump controls: Water, Vacuum & Hydro-Excavation pump, engine speed control, Jetting pressure control. Water tank and debris tank level indicators are also displayed.

Boom & Hose Reel Controls: Full control of the boom and hose reel is available through the HMI, including an adjustable speed setting for the hose reel.

Unloading Controls: The unloading is sequence controlled to offer optimum protection to the operator and system. The unloading procedure is protected by lockout if incorrect sequence is attempted.

System Status Indicators: The HMI also displays the following information: Engine speed (rpm), jetting pump flow (L/min), PTO status, rear axle load (kg), boom position, engine health, E-Stop health, hydraulic system health. This information is displayed at all times on the HMI.

Hours Meters: Meters for PTO Hours, Vacuum Pump Hours, & Jetting Pump hours are also available on the HMI.

Water pressure gauges for both Jetting & Hydro-Excavation pumps are also included on the passenger side of the system.

All system functions are linked to a series of high-speed CAN bus programmable logic controller modules which communicate with truck engine electronic engine management systems to maintain constant power and torque without engine flare.

SAFETY SYSTEMS

- “Emergency Stop” palm type buttons are fitted to the system. The remote control is also fitted with a push button emergency stop. Upon activation all functions will be de-activated and truck engine shall return to idle.
- On low water level the water pump will shut down to prevent pump damage from running dry.
- Upon high debris level the vacuum pump shall be de-activated.
- The shutdown system will be supported by indicator lights to alert operator.
- A safety lockout is included on the HMI display to prevent operation of system from the fixed station while the remote is in use.
- The truck park brake is fitted with a system lockout preventing engagement of the unit unless activated.
- Truck accelerator pedal is isolated while system is engaged.
- Sequence unloading protection.
- Audible buzzer on all unloading controls.
- Safety props for rear door are included
- Body Safety prop on tipping body is fitted.
- The hydraulic system incorporates system shut down on low oil level and high temperature.
- The system will not allow transition back to Road Mode unless all equipment is stowed.
- The system will shut down if an engine warning is displayed on the dash.
- Vacuum pump will shut down if the rear axle load sensing system detects an excess of weight (optional).



HYDRO EXCAVATION MODULE

- A quality Inter-pump model W2030 rated to 200 Bar at 30 litres per minute.
- The pump is mounted to a pressed steel powder coated base and includes anti-vibration mounts with flexible drive coupler and coupler guard.
- It shall be hydraulically driven by a bent axis variable displacement motor.
- Included will be a pressure regulator/unloader, liquid dampened pressure gauge, and safety relief valve and inlet water filter.
- To support the hydro system a manual hose reel fitted with 30 metres of 12.5mm hose assembly. Includes diversion valve permitting the small reel to be used also for cleaning of small diameter drains.
- A hand gun with 1200mm lance and Turbo Killer rotating nozzle is provided.

PAINTING

- The body and boom/hose reel assembly shall be grit blasted to remove rust scale, dirt, grease and welding slag then immediately painted with primer/surfacer.
- The primer/surfacer shall be fully sanded and painted with two full coats of two pack urethane paint in single colour, excludes truck cab. Multiple colours available at additional cost.
- Gaps subject to water retention shall be fitted with a flexible gap resin to prevent rusting.

LIGHTING

NIGHT WORK LIGHTS 'LED'

Powerful 'LED' work lamps fitted with full swivel mounting bases allowing easy spotting for night work with ON/OFF switch and isolation control within the truck cabin permitting use as reverse lamps also.

A choice of mounting positions are offered:

- 1 off end of boom scorpion tail for pit illumination.
- 2 off mounted either side at the rear of the unit.

ROTATING AMBER BEACONS

One front and two rear mounted amber rotating 'LED' beacons with switching from inside the truck chassis with option of park brake lockout preventing operation when vehicle is in transit.

PUMP COMPARTMENT LIGHT

A 'LED' lamp mounted within the pump compartment storage area.

CLEARANCE LIGHTS & MARKER LAMPS

Front and rear outline lights and side marker lamps will be 'LED' type.

SAFETY DIRECTIONAL ARROW BAR – 'LED'

Mounted to rear debris door with control pad dash mounted.

SIGNAGE & LABELLING

All operation and service points shall be clearly identified and labelled with permanent labels.

SUPPORT EQUIPMENT SUPPLIED

VACUUM ACCESSORIES

- 2 off 2 metre x 150mm aluminium vacuum extension tubes with quick release couplers, gaskets and clamps.
- 1 off 1 metre x 150mm aluminium vacuum extension tubes with quick release couplers, gaskets and clamps
- 1 off 1 meter x 150mm steel fluidising nozzle tube with quick release coupler, gasket and clamp.

JETTING SUPPORT EQUIPMENT

- 1 off 102100 1" hardened stainless steel nozzle with eight rear thrust jets.
- 1 off 102200 1" hardened stainless steel nozzle with eight rear thrust jets and one forward jet.
- 1 off E42.100A 1" ENZ Grenade nozzle with ceramic insert jets, five straight jets at 10° and five fan jets at 30°.
- 1 off 101400 ½" hardened stainless steel nozzle with six rear jets and one forward jet.
- 1 off 110901 Tiger tail/slipper hose.
- 1 off 110904 1" x 3m Yellow leader hose
- 1 off 110800 Piranha 'slither' thermoplastic sewer cleaning hose, 1"x183m.

MANUALS

- The system shall be supplied with a comprehensive manual.
- The manual covers operation, service and maintenance, hydraulic, pneumatic and electrical schematics, trouble shooting, parts breakdown and spares listing and Occupational Health and Safety.
- The full manual is also included in USB format.
- Operators manual is supplied.

INSTALLATION

- The Extractor will be fitted to our nominated truck chassis to form a fully operational functioning system.
- Prior to passing over the unit shall be fully test loaded with all performance values set.
- The Extractor shall include all equipment and items listed within this specification along with selected cost options nominated at time of order placement.



COST OPTIONS

STORAGE TRAYS

- Mounted forward to the pump compartment is a wide and deep stainless steel storage tray running across the width of the body work to facilitate safe storage of miscellaneous tools etc.

REAR DOOR VALVE

- A 150mm quarter turn valve is fitted off set rear bottom of the collector body rear door to allow draining of the collector body of light viscosity liquids. The valve outlet includes a 150mm male Travis coupler and dust cap with retainer chain.

WORK VICE

- The 100mm work vice is mounted to a slide out type arm with locking pin fitted within the pump compartment at the roller shutter.

ROOT CUTTER KITS

Water driven hydraulic rootcutter kits available to various diameter pipes. Kits include motor and drive nozzle assembly with skids and saw blades. Kits available:

- i) 4", 6", 9", & 12" – (Part No. 120700)
- ii) 4", 6", 9", 12" & 15" – (Part No. 120800)
- iii) 6", 9", 12", 15" & 18" – (Part No. 120900)
- iv) 22", 24", 30" & 32" – (Part No. 121000)

SPECIALITY JETTING NOZZLES

i) ENZ BULLDOG NOZZLE

Balanced controlled rotating nozzle fitted with ceramic insert jets. Ideal for removal of fats, grease, hard deposits and fibrous tree roots.

Part No: 402.080LS100 (Suit 125-400mmØ)
400.101A (Suit 250-600mmØ)

ii) ENZ FLOUNDER NOZZLE

A duck type shaped nozzle for cleaning of culverts.

Part No: 70.100

iii) ENZ SCRAPER NOZZLE

For the bottom cleaning of large diameter pipes up to 1000mm in diameter.

Part No: 50.100G

We also have a huge range of special application nozzles available:-

- Impact Cutter
- Chain Flails
- Propeller Nozzles
- Radial Rotating Nozzles
- Vibrating Nozzles

AIR INDUCTION VACUUM EXTENSION

- Extremely useful when vacuuming sludge below the water level by minimising the water content of the product. Includes quick release coupler to marry with boom hose and vacuum extensions supplied with the system.

HOSE SPAGING KIT

- To facilitate field service hose repair the swaging allows quick application of hose end joiners in both male and female fittings. The kit includes three each of male and female ends.

STAINLESS STEEL PUMP

- The standard high pressure water pump offered is fitted with nickel plated cast iron wet end. As an option a stainless steel pump head is available to extend the pump life. Extremely beneficial with hard water.

REVERSING CAMERA

- A 125mm high definition colour monitor cab. The system is automatically switched on upon selection of reverse gear and may be manually over ridden.



* With ongoing research and development DCS Manufacturing Pty Ltd reserve the right to

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