

Workshop Manual

Wiring diagrams

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2(0)

61, 62, 63, 71, 72, 73, 74-series

Group 30 Electrical system

Wiring diagrams

Marine engines

TAMD61A • TAMD62A

TAMD63L-A • TAMD63P-A

TAMD71A • TAMD71B

TAMD72A • TAMD72P-A • TAMD72WJ-A

TAMD73P-A • TAMD73WJ-A

TAMD74A-A • TAMD74A-B

TAMD74C-A • TAMD74L-A • TAMD74P-A

TAMD74C-B • TAMD74L-B • TAMD74P-B

Contents

Safety information	2	TAMD74C-A/L-A/P-A (12V)	17
Introduction	2	TAMD74C-B/L-B/P-B (12V)	18
Important	2	TAMD74C-A/L-A/P-A/C-B/L-B/P-B (24V)	19
General information	5	Block diagram – Instrument panels	20
About the workshop manual	5	Wiring diagram – instrument panel, main control position	22
Spare parts	5	Wiring diagrams – instrument panel for alternative control position (flying bridge) and auxiliary control panel	24
Certified engines	5	Wiring diagram – instrument kit, main control position	26
Wiring diagrams, engine	6	Wiring diagram – instrument kit for alternative control position (flying bridge)	28
TAMD61A, TAMD71A (12V, 24V)	7	Wiring diagrams – control system (EDC)	30
TAMD61A, TAMD62A, TAMD71A, TAMD71B, TAMD72A, TAMD72WJ-A (12V, 24V)	8	Wiring diagrams – general	37
TAMD63L-A, TAMD63P-A (12V, 24V)	9	Wiring diagram – EDC colour coding.	38
TAMD71B (12V, 24V)	10	Wiring diagrams – alternative control system for EDC controls	40
TAMD72WJ-A (12V, 24V)	11	Wiring diagram – water jet control panel	44
TAMD72P-A (12V)	12	Reversing bucket operation – water jet	46
TAMD72P-A (24V)	13	References to Service Bulletins	48
TAMD73P-A (12V)	14		
TAMD73P-A (24V)	15		
TAMD73WJ-A, TAMD74A-A/A-B (12V, 24V)	16		

Safety information

Introduction


The workshop manual contains technical data, descriptions and repair instructions for products or product versions noted in the table of contents, supplied by Volvo Penta. Make sure you use the correct workshop literature.


Read the available safety information, "General information" and "Repair instructions" in the workshop manual before you start to do any service work.

If work is done adjacent to a running engine, a careless movement or a dropped tool can lead to personal injury in the worst case. Be careful with hot surfaces (exhaust pipes, turbos, charge air pipes, starting heaters etc.) and hot fluids in pipes and hoses on an engine which is running or which has just stopped. Re-install all guards which have been removed during service work, before re-starting the engine.

Important


The following special warning signs are found in the workshop manual and on the product.


 **WARNING!** Warns for the risk of personal injury, major damage to product or property, or serious malfunctions if the instruction is ignored.


 **IMPORTANT!** Is used to call attention to things which could cause damage or malfunctions to product or property.


NOTE! Is used to call attention to important information, to facilitate work processes or operation.


To give you a perspective on the risks which always need to be observed and precautions which always have to be taken, we have noted them below.


 Make it impossible to start the engine by cutting system current with the main switch(es) and lock it (them) in the off position before starting service work. Fix a warning sign by the helmsman's seat.


 All service work should normally be done on a stationary engine. Some work, such as adjustments, need the engine to be running, however. Going close to a running engine is a safety risk. Remember that loose clothes, long hair etc. can catch on rotating components and cause severe injury.


 Make sure that the warning or information labels on the product are always clearly visible. Replace labels which have been damaged or painted over.


 Never start an engine without the air filter in place. The rotating compressor turbine in the turbocharger can cause severe injury. Foreign bodies in the inlet pipe can also cause severe mechanical damage.


 Never use start spray or similar products as a starting aid. Explosions could occur in the inlet manifold. Danger of personal injury.

 Avoid opening the coolant filling cap when the engine is hot. Steam or hot coolant can spray out at the same time as the pressure which has built up is lost. Open the filler cap slowly, and release the pressure in the cooling system if the filling cap or tap has to be opened, or if a plug or coolant hose has to be removed when the engine is hot. Steam or hot coolant can stream out in an unexpected direction.

 Hot oil can cause burns. Avoid skin contact with hot oil. Make sure that the oil system is de-pressurised before doing any work on it. Never start or run the engine with the oil filler cap removed, because of the risk of oil spillage.

 Stop the engine and close the sea cocks before doing any work on the cooling system.

 Only start the engine in a well-ventilated area. When operated in a confined space, exhaust fumes and crankcase gases must be ventilated from the engine bay or workshop area.

 Always use goggles when doing any work where there is any risk of splinters, grinding sparks, acid splash or other chemicals. Your eyes are extremely sensitive, injury could cause blindness!

- ⚠ Avoid skin contact with oil! Long-term or repeated skin contact with oil can make your skin dry out. The consequence is irritation, dry skin, eczema and other skin disorders. Used oil is more hazardous to health than new oil. Use protective gloves and avoid oil-soaked clothes and rags. Wash regularly, especially before meals. Use special skin cream to avoid drying and facilitate skin cleaning.
- ⚠ Most chemicals intended for the product (e.g. engine and transmission oils, glycol, petrol (gasoline) and diesel oil) or chemicals for workshop use (e.g. degreasers, paints and solvents) are hazardous. Read the instruction on the packages carefully! Always observe the safety advice (e.g. use of breathing protection, goggles, gloves etc.). Make sure that other personnel are not inadvertently exposed to hazardous substances, such as via the air they breathe. Ensure good ventilation. Handle used and surplus chemicals in the prescribed manner.
- ⚠ Be very careful when searching for leaks in the fuel system and testing fuel injectors. Use goggles. The jet which comes from a fuel injector has very high pressure and considerable penetration ability. Fuel can force its way deep into body tissue and cause severe injury. Risk of blood poisoning (septicaemia).
- ⚠ All fuels, and many chemicals, are flammable. Make sure that open flames or sparks can not set them alight. Petrol (gasoline), some thinners and hydrogen gas from batteries are extremely flammable and explosive when mixed with air in the correct ratio. Do not smoke! Provide good ventilation and take the necessary precautions before you start welding or grinding in the vicinity. Always have a fire extinguisher easily available near the workplace.
- ⚠ Make sure that oil and fuel soaked rags, and used fuel and oil filters are stored in a safe place. Oil soaked rags can self-ignite in certain circumstances. Used fuel and oil filters are polluting waste and must be handed to an approved waste management facility for destruction, together with used lubrication oil, contaminated fuel, paint residue, solvents, degreasers and wash residue.
- ⚠ Batteries must never be exposed to open flames or electric sparks. Do not smoke close to the batteries. The batteries generate hydrogen gas when charged, which forms an explosive gas when mixed with air. This gas is very flammable and highly explosive. A spark, which can be formed if the batteries are wrongly connected, is enough to make a battery explode and cause damage. Do not move the connection when you attempt to start the engine (risk of arcing), and do not stand and lean over one of the batteries.
- ⚠ Never mix up the battery positive and negative poles when the batteries are installed. If the batteries are wrongly connected, this can cause severe damage to the electrical equipment. Please check the wiring diagram!
- ⚠ Always use goggles when charging and handling batteries. Battery electrolyte contains highly corrosive sulphuric acid. If this comes into contact with your skin, wash at once with soap and a lot of water. If you get battery acid in your eyes, flush at once with a generous amount of water, and get medical assistance at once.
- ⚠ Stop the engine and cut the system current with the main switch(es) before doing any work on the electrical system.
- ⚠ The clutch must be adjusted with the engine shut off.
- ⚠ The existing lugs on the engine/reverse gear should be used for lifting. Always check that the lifting devices are in good condition and that they have the correct capacity for the lift (the weight of the engine plus the reverse gear and extra equipment if installed). The engine should be lifted with a customised or adjustable lifting boom for safe handling and to avoid damaging components on top of the engine. All chains or cables should be parallel to each other and should be as square as possible to the top of the engine. If other equipment connected to the engine has altered its centre of gravity, special lifting devices may be needed to obtain the correct balance and safe handling. Never do any work on an engine which just hangs from a lifting device.
- ⚠ Never work alone when heavy components are to be dismantled, even when safe lifting devices such as lockable blocks & tackle are used. Even when lifting devices are used, two people are needed in most cases. One who operates the lifting device and other who makes sure that components move freely and are not damaged during lifting. When you work aboard a boat, always make sure that there is enough space for disassembly where you are working, with no risk for personal or material damage.