MARINER OUTBOARDS

MERCURY OUTBOARDS

service bulletin

No. 95-11

Quicksilver Digital Diagnostic Terminal (DDT) and Accessories - 150 thru 220 EFI, 225/250 3 Litre

Models Affected

MARINER AND MERCURY OUTBOARDS - 1986 AND LATER 2.4, 2.5, AND 3 LITRE

MERCURY HI-PERFORMANCE PRODUCTS - 1982 AND LATER 2, 2.4, 2.5, AND 3.4 LITRE

MERCRUISER EFI - 1993 AND LATER GASOLINE STERN DRIVE AND INBOARD

A new, greatly enhanced cartridge and new adaptor cables allow the Digital Diagnostic Terminal (DDT) to be used on a wider range of product. The new cartridge upgrade incorporates the diagnostic support for models included in the previous DDT software cartridge as well as support for new models. Quicksilver plans to continue this practice of providing previous and new information on one cartridge as new software upgrades become necessary. Quicksilver also plans to continue to provide the cartridge at a very low price and without a rebate for previous cartridges.

OUTBOARD DDT TEST CAPABILITIES

The Digital Diagnostic Terminal will provide the following capabilities:

1. Receive, compute, and display on the 80-character LCD screen the **actual, minimum, and maximum values** for the following readings.
   - Engine RPM
   - Coolant Temperature
   - Spark Timing
   - Atmospheric Pressure
   - Fuel Pump Amperage
   - Throttle Position
   - Intake Air Temperature
   - Battery Voltage
   - Knock Voltage
   - Manifold Absolute Pressure
   - Fuel Pump Duty Cycle
   - Injector Pulse Width
2. Monitor the **condition of sensors and switches** for:
   - Electric Fuel Pump Status
   - Sensor History
   - Oil Level
   - Fuel Enrichment Valve
   - Shift Switch
   - Throttle Position
   - Coolant Temperature
   - Intake Air Temperature
   - Fuel Pump Amperage
   - Overheat Condition
   - RPM Limiter
   - Cold Start Enrichment Signal
   - Water in Fuel Filter
   - Trigger Signal
   - Manifold Absolute Pressure
   - Knock Voltage
3. Monitor fuel delivery by performing a **stand alone injector test**. This test allows the technician to monitor fuel delivery by turning the injectors “On” for the precise amount of time it takes for a measured amount of fuel to be sprayed into the intake manifold.
4. Assure the technician of proper diagnostics and repair by establishing **PROM Identification** (Programmable Read Only Memory). This feature has the ability to positively identify the ECM vintage and calibration software.

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MERCRUISER DDT TEST CAPABILITIES

The Digital Diagnostic Terminal will provide the following capabilities:

1. Receive, compute, and display to the 80-character LCD screen **actual values** for the following readings:
   - ECM Status
   - Engine RPM
   - Intake Air Temperature
   - Coolant Temperature
   - Battery Voltage
   - Spark Timing
   - Knock Retard
   - Barometric Pressure
   - Power Reduction
   - Manifold Absolute Pressure
   - Throttle Position
   - Injector Pulse Width
   - Idle Air Control
   - Desired Idle Speed
   - Total Engine Run Time
   - Current Engine Run Time
   - Fuel Rate (gallons per hour)
2. Monitor the **condition of sensors and switches** for:
   - Transmission Temperature Switch
   - Low Oil Pressure Switch
   - Lanyard stop switch
   - Overheat Condition
   - Drive Fluid Level Switch
   - Power Reduction Condition
   - ECM Status Condition
3. Display, record, and clear the following **trouble codes**:
   - Code 14 - Engine Coolant Temperature
   - Code 21 - Throttle Position Sensor
   - Code 23 - Intake Air Temperature
   - Code 33 - Manifold Absolute Pressure
   - Code 42 - Ignition Control
   - Code 43 - Knock Sensor
   - Code 51 - Calibration Memory Failure
4. The **Service Mode** allows the technician to perform an *Engine-Off/Key-On* test to read the vital signs of the engine's electrical system to determine if the ECM is operating properly. The DDT also performs an *Engine Running* test, which operates in an open loop mode, that allows the technician to use default values to monitor a number of sensors, as well as select a list of sensor data items to be observed.
5. Check for a fuel pressure drop between injectors by running the **Injector Test**. A technician can turn an injector "On" for the precise amount of time it takes for a measured amount of fuel to be sprayed into the intake manifold. Running this test on different injector allows technicians to make a comparison between the injectors.
6. Assure the technician of proper diagnostics and repair by establishing **PROM Identification** (Programmable Read Only Memory). This feature has the ability to positively identify the ECM vintage and calibration software.

Following is a list of equipment, part numbers and usage.

Digital Diagnostic Terminal (DDT) 91-823686A 2 is hand held, easy to use, and menu driven. The liquid crystal display has 4 lines with 80 characters available for data. A flexible sealed keypad, rubber boot, and rugged design will provide many years of service. The DDT comes with a 10 foot (3 m) extension cable.

Software Cartridge 91-822608 1 was the first cartridge produced and is replaced by and superseded to the new 91-822608 2 cartridge.

- 1994 to 1994-1/2 225 3 litre carburetor outboard.

Software Cartridge 91-822608 2 is the current cartridge.

- 1982 and newer 2, 2.4, 2.5, and 3.4 litre Hi-Performance fuel injector test.
- 1994 and newer 2, 2.4, 2.5 litre EFI standard and Hi-Performance outboards. *
- 1994 and newer 225 3 litre carburetor outboard.
- 1995 and newer 225 EFI 3 litre outboard.
- 1996 and newer 250 EFI 3 litre outboard.
- 1993 and newer EFI MerCruiser stern drive and inboard. Includes throttle body and port fuel injection systems.

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ECM Cable Adaptor 84-822560A 1 connects to ECM diagnostic connector and to DDT.

- 1994 225 3 litre carburetor outboard.

Fuel Injector Cable Adaptor 84-822560A 2 connects to ECM diagnostic connector and to DDT.

- 1993 and newer EFI MerCruiser stern drive and inboard with throttle body and port fuel injection systems.

ECM Cable Adaptor 84-822560A 3 connects to ECM diagnostic connector and to DDT. Supersedes to 84-822560A 7 with a fuel injector test wire.

- 1995 and newer 225 3 litre carburetor and EFI outboard.

ECM Cable Adaptor 84-822560A 5 connects to ECM diagnostic connector and to DDT.

- 1994-1/2 and newer 2.5 litre EFI outboards with 824003 Digital ECM: *

Mariner 150, 175, and 200 Magnum EFI.

Mercury 150, 175, and 200 XRi.

Pro Max 150, 200, and 225.

Super Magnum 150, 200, and 225.

ECM Cable Adaptor 84-822560A 6 connects to ECM diagnostic connector and 84-822560A 7 adaptor cable to enhance data received.

- 1995 and newer carburetor and EFI 225 outboards.
- 1996 and newer 250 EFI outboard.

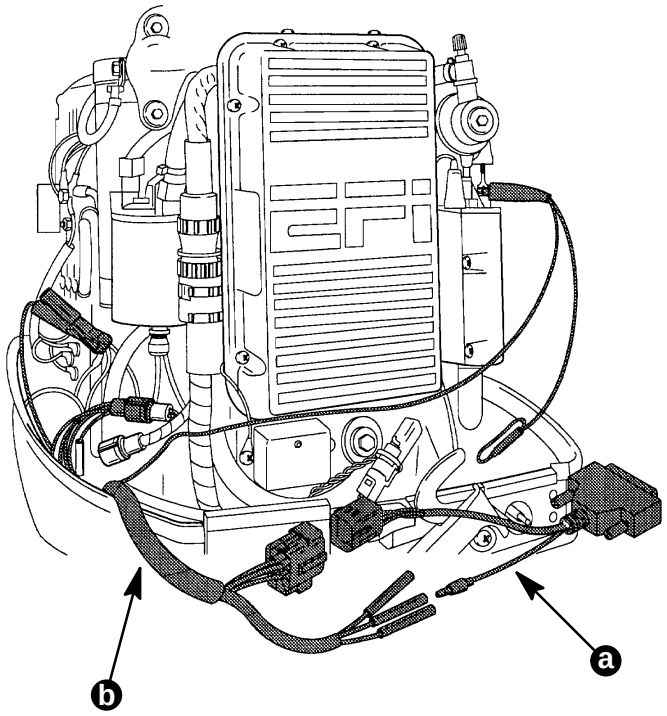
ECM Cable Adaptor 84-822560A 7 connects to A-6 adaptor cable and DDT. Is identical to 84-822560A 3 cable adaptor with the addition of a fuel injector test wire.

- 1995 and newer 225 carburetor and EFI outboards.
- 1996 and newer 250 EFI outboard.

ECM Cable Adaptor 84-822560A-8 connects to ECM diagnostic connector and to 84-822560A 7 cable adaptor.

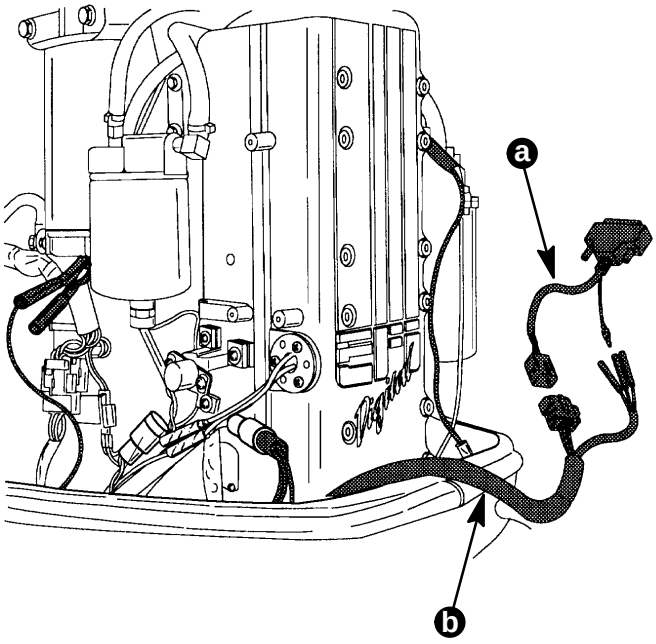
- 2, 2.4, and 2.5 litre EFI Hi-Performance outboards with 11350A?? digital ECM.

Fuel Injector Test Cable Adaptor 84-830043A 1 connects to four pin fuel injector wire connector and 84-822560A 7 to operate injectors. Use on models with fuel injectors mounted in manifold on the front of the engine.



a - 84-822560A 7 ECM Cable Adaptor
b - 84-830043A 1 Injector Test Cable Adaptor

Figure 1. 2.4 and 2.5 Litre Models



a - 84-822560A 7 ECM Cable Adaptor
b - 84-830043A 1 Injector Test Cable Adaptor

Figure 2. 3 Litre Models

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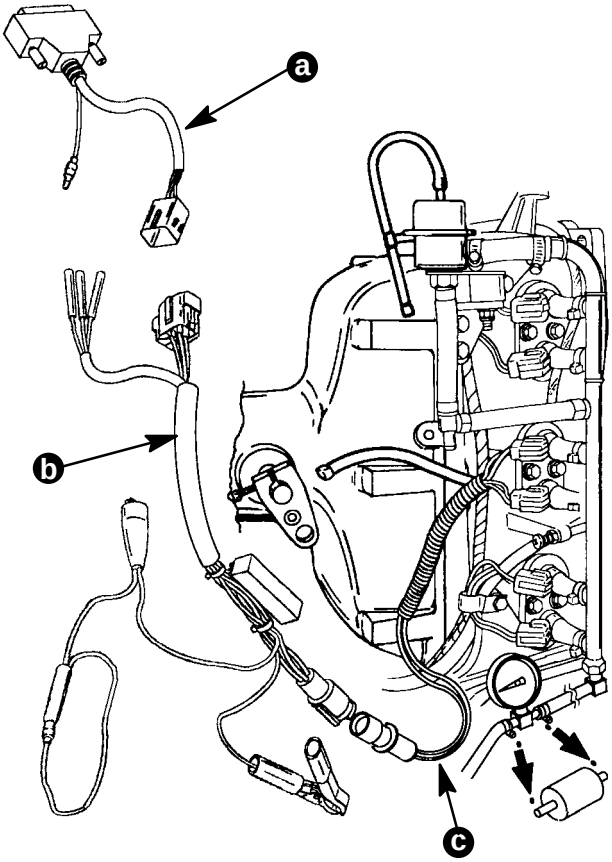
Fuel Injector Test Cable Adaptor 84-830043A-2 connects to ECM diagnostic connector and 84-830043A 1 fuel injector test cable adaptor to operate injectors. Use with Hi-Performance EFI outboards with fuel injectors mounted on the side of the crankcase.



a - 84-822560A 7 ECM Cable Adaptor
b - 84-830043A 1 Injector Test Cable Adaptor
c - 84-830043A 2 Injector Test Cable Adaptor

Figure 3. Hi-Performance Models

*NOTE: * Also includes previous models that had the original ECM replaced with the newer digital ECM incorporating a diagnostic connector.*

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Marine Engine/DDT Harness Cross-Reference Chart

An adapter and/or injector harness is used to connect the Quicksilver Digital Diagnostic Terminal with the marine engine. The accompanying chart identifies the specific harness that should be used with various engine models.

HARNESS CABLE REFERENCE CHART ENGINE MODEL	HARNESS PART NUMBER									
	Adapter Harness P/N 84- 822560A 1	Adapter/Injector Harness P/N 84- 822560A 2	Adapter Harness P/N 84- 822560A 3 (cable supersede to P/N 84- 822560A 7)	Adapter Harness P/N 84- 822560A 5	Adapter Harness P/N 84- 822560A 6 (use in conjunction with P/N 84- 822560A 7)	Adapter Harness P/N 84- 822560A 7 (use in conjunction with P/N 84- 822560A 6)	Adapter Harness P/N 84- 822560A 8 (use in conjunction with P/N 84- 822560A 7)	Injector Test Harness P/N 84- 8300A3 1 (use in conjunction with P/N 84- 822560A 7)	Injector Test Harness P/N 84- 8300A3 1 (use in conjunction with P/N 84- 8300A3 2)	Adapter/Injector Harness P/N 84- 8300A3 2 (use in conjunction with P/N 84- 8300A3 1)
MerCruiser Stern Drives and Inboards										
1993 and Later MerCruiser Gasoline Stern Drive and Inboard EFI Engines (Includes Throttle Body and Port Fuel Injection Systems)		X								
Mercury/Mariner Outboards										
1986 and Later EFI 2.4, 2.5 and 3.0 Litre Outboards						X		X		
1986-1994 Mercury/Mariner EFI 2.4, 2.5 Litre (with 14632A Analog ECM)						X		X		
1994-1/2 and Later Mercury 150 XRI/EFI 2.5 Litre (with 824003 Digital ECM)				X				X		
1994-1/2 and Later Mercury 150 Pro Max EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 150 Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 150 Super Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mercury 175 XRI/EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 175 Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mercury 200 XRI/EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mercury 200 Pro Max EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 200 Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 200 Super Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1994 Mercury/Mariner 225 Carb 3.0 Litre	X									
1994-1/2 and Later Mercury 225 Pro Max EFI 2.5 Litre (with 824003 ECM)				X				X		
1994-1/2 and Later Mariner 225 Super Magnum EFI 2.5 Litre (with 824003 ECM)				X				X		
1995 and Later Mercury/Mariner 225 and 250 (Including Offshore) EFI and Carb 3.0 Litre					X	X		X		
1995 and Later Mercury SeaPro and Mariner Marathon EFI and Carb 3.0 Litre					X	X		X		
1995 and Later Mercury/Mariner 225 Carb 3.0 Litre			X							
Hi-Performance Outboards										
1982 and Later Hi-Performance EFI 2.0, 2.4, 2.5 and 3.4 Litre (Including Offshore)						X			X	X
All Mercury Hi-Performance 2.0 and 2.5 Litre EFI (with 11350A Digital ECM)						X	X			

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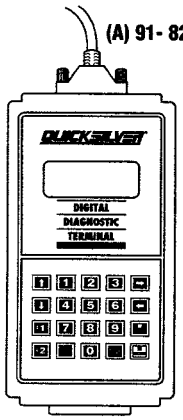
QUICKSILVER DIGITAL DIAGNOSTIC TERMINAL

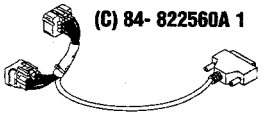
ORDER FORM



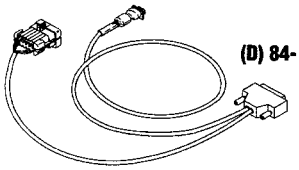
(A) 91- 823686A 2



(B) 91- 822608 2



(C) 84- 822560A 1



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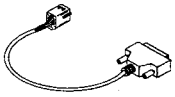
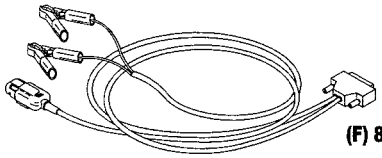


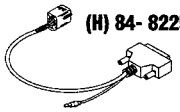
(E) 84- 822560A 3



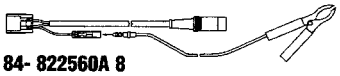
(F) 84- 822560A 5



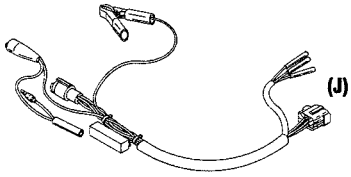
(G) 84- 822560A 6



(H) 84- 822560A 7



(I) 84- 822560A 8



(J) 84- 830043A 1



(K) 84- 830043A 2

QTY.	ITEM	PART NUMBER	DEALER NET	EXT. AMT.
_____	**Quicksilver Digital Diagnostic Terminal (DDT) (A)** •1986 and up EFI Outboards with Electronic Control Modules (ECM) for 2.0, 2.4, 2.5 and 3.0 Litre. Includes Hi-Performance 2.0, 2.4, and 2.5 Litre. •1993 and up EFI MerCruiser Engines •1994 3.0 Litre Carbureted Outboards	**91- 823686A 2**	**$638.35**	_____
_____	**Quicksilver DDT Software Cartridge (B)** •1986 and up EFI Outboards with Electronic Control Modules (ECM) for 2.0, 2.4, 2.5 and 3.0 Litre. Includes Hi-Performance 2.0, 2.4, and 2.5 Litre. •1993 and up EFI MerCruiser Engines •1994 and up 3.0 Litre Carbureted Outboards	**91- 822608 2**	**$88.98**	_____
_____	**Adapter Harness (C)** •1994 3.0 Litre Carbureted Outboards * Mercury 225 hp * Mariner 225 hp	**84- 822560A 1**	**$45.75**	_____
_____	**Adapter/Injector Harness – MerCruiser only (D)** •1993 and up Gasoline Stern Drive and Inboard EFI Engines. (Includes Throttle Body and Port Fuel Injection Systems)	**84- 822560A 2**	**$35.50**	_____
_____	**Adapter Harness (E)** •1995 and up 3.0 Litre Carbureted Outboards (Cable Supersedes to 84-822560A 7) * Mercury 225 hp * Mariner 225 hp	**84- 822560A 3**	**$39.88**	_____
_____	**Adapter Harness (F)** •1994-1/2 and up 2.5 Litre EFI Outboards (with 824003 ECM only) * Mercury – XRi 150 hp, 175 hp, 200 hp * Pro Max – 150 hp, 200 hp, 225 hp * Mariner – Magnum 150 hp, 175 hp, 200 hp * Super Magnum – 150 hp, 200 hp, 225 hp	**84- 822560A 5**	**$64.90**	_____
_____	**Adapter Harness (G)** •1995 and up 3.0 Litre EFI and Carbureted Outboards (NOTE: Use in conjunction with 84-822560A 7.) * Mercury – 225 hp, 250 hp (Includes Offshore) * Mariner – 225 hp, 250 hp (Includes Offshore)	**84- 822560A 6**	**$8.13**	_____
_____	**Adapter Harness (H)** •1995 and up 3.0 Litre EFI and Carbureted Outboards (Includes Offshore) (NOTE: Use in conjunction with 84-822560A 6.) * Mercury – 225 hp, 250 hp, and SeaPro * Mariner – 225 hp, 250 hp, and Marathon	**84- 822560A 7**	**$39.88**	_____
_____	**Adapter Harness (I)** •All Mercury Hi-Performance 2.0 and 2.5 Litre EFI Outboards (with 11350A Digital ECM only) (NOTE: Use with 84-822560A 7 adapter cable.)	**84- 822560A 8**	**$39.88**	_____
_____	**Injector Test Harness (J)** •1986 and up 2.4, 2.5 and 3.0 Litre EFI Outboards (NOTE: Use with 84-822560A 7 adapter cable.) •1982 and up Hi-Performance 2.0, 2.4, 2.5 and 3.4 Litre Outboards (NOTE: Use with 84-830043A 2 adapter cable.)	**84- 830043A 1**	**$15.08**	_____
_____	**Adapter/Injector Harness (K)** •1982 and up Hi-Performance 2.0, 2.4, 2.5 and 3.4 Litre EFI Outboards (Including Offshore Models) (NOTE: Use with 84-830043A 1 adapter cable.)	**84- 830043A 2**	**$12.75**	_____

TOTAL_____

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