

# Navistar Diagnostic Tools

## Items that are required to diagnose IH electronic engines and multiplexed dashboards:

1. Engine Diagnostic Software (ServiceMaxx, Service Assistant, or Master Diagnostics (MD Fleet)
2. Multiplexed Dashboard diagnostic software (Diamond Logic Builder or Intune)
3. ISIS (service manuals on disc)
4. Communications cable to connect your laptop to the truck (Nexiq USB Link or similar)
5. EGED and EGES Diagnostic forms
6. Optional: ABS, Allison, and Instrument panel software, see below

**ISIS- (IH Service Manuals)** on DVD available from your IH dealer parts dept. at a cost of about \$250. It is their complete service manual covering engine repair, chassis service, and diagnostics on all engines back to the 1980's. It also includes electrical schematics from 1998 up.

## **Diagnostic Equipment:**

**Nexiq** [www.nexiq.com](http://www.nexiq.com) is now the supplier and all software is distributed through various warehouses such as Chalk's Truck Parts (800-231-5061) or your local IH dealer.

**Engine Diagnostic Software:** (note you will also need a communications cable, see below)

- **ServiceMaxx** is the current software for engine diagnostics. PN 828009D9 \$850 list plus \$300.00 per year subscription fee. All of these softwares do a great job at the factory level for diagnostics. They access data and diagnostics on all IH electronic engines- 1994 to current T444E, VT365, DT466E, 530E, DT466 (EGR), DT570, HT570, VT275, and all MaxxForce engines. This software does not work with Cat, Cummins, or Detroit engines. ServiceMaxx has somewhat of a steep learning curve, casual users be forewarned. Turbo Training does offer a ServiceMaxx book available to help you learn the program. I suggest the **Nexiq USB Link** comm cable for this program.
- **Master Diagnostics** AKA MD32 or MD Fleet (discontinued) will access late engine pids (2008 up with DPF) but will not access DPF pids used for diagnosing aftertreatment systems. Master Diagnostics (MD Fleet), and Service Assistant (SAINT) are excellent OE softwares, but may not access the exhaust aftertreatment PIDS on 2008 up trucks.
- **Service Assistant for IH Trucks** AKA Saint (discontinued) was a revised version of MD. It will access late engine pids (2008 up with DPF) and aftertreatment systems but may not give full diagnostics on 2008 up MaxxForce engines.

**Dashboard/Chassis Diagnostic Software:** (note you will also need a communications cable, see below)

- **Diamond Logic Builder** PN 828005 \$775, Multiplexed dashboard diagnostic software for later IH trucks from 2001 up: models 3200, 4100, 4200, 4300, 4400, 7400, 7500, 7600, 7700, 8500, 8600, etc. Intune was the old multiplexed software, which was replaced several years ago with Diamond Logic Builder, which is the new multiplexed software. Instrument Panel Cluster (IPC) is good for 4700/4900 series from '97-02. The multiplexed trucks after that use DLB (or INTUNE, if you happen to have an old copy). This program also has a steep learning curve. Turbo Training has about 100 pages of information on learning it in the IH Multiplexing book.

- IPC- Instrument Panel Cluster Diagnostic Software PN 850042 \$350 for '97-01 MD and HD data-driven dash (these trucks read dash info from the J1708 data stream but are not fully multiplexed dashboards) This includes all '97-2002 4700, 4800, and 4900 models.
- Allison Doc for Allison Transmissions: \$695, works all most comm cables (except for late Gen4 reflashing) diagnosticinnovations.com Software PN is J44950-G and is compatible with most comm cables for diagnostics. If you need to do reflashing of Allison controllers, you will need the Dearborn DPA4USB cable kit for flashing the later Gen 5 Allison controllers used from about 2006 on up. <http://diagnosticinnovations.com>
- Hydraulic ABS diagnostic software PN 850044 \$325 for 1998-2002 4700 series trucks
- Hydraulic ABS diagnostic software for NGV (2002 up 4200/4400 trucks) Use Wabco Toolbox software, call 800-328-6657 to order.
- Bendix Air ABS: Download the free program from <http://www.bendix.com/en/servicessupport/abssoftware/absdiagnostic.jsp> or Bendix.com. You will also need any of the comm cables.

**Communications Cables:** You will need at least one, and it depends on what you're working on to determine which cable(s) you'll need. The cable with the least communications drop-outs is the **Nexiq USB Link**. The only oddball applications are reflashing late Allison computers, and late Cummins service, which are both cable-specific programs.

**Generic type RP1210 compliant cables which work with most software:**

- **Nexiq USB Link** ( PN 125032 USB-Link, [www.nexiq.com](http://www.nexiq.com)) Works well and is the preferred choice for most fleets. It is also available in wireless.
- **Movimento NAV-Link/NAVCoM:** The factory supported cable is the Movimento NAV-Link for most fleets and NAVCoM for dealers. <https://secure.movimentodl.com/proddetail.php?prod=NAV-Link&cat=1060>
- **EZ Tap Wireless:** Wireless RP1210 cable for all HD diagnostic software on most J1708/J1939 platforms. <http://www.xscapeez.com/products.html>
- **IC4COM Cable kit** Part Number ZTSE4632-USB Even though IH is no longer supporting this cable, it is likely to work on most software just fine except ServiceMaxx, especially on older engines. <http://international.spx.com> or <http://www.suenterprise.com/Default.asp>, \$400-700
- **Eaton MD 100** Part Number: VL-Kit-01 \$565 [www.diagnosticinnovations.com](http://www.diagnosticinnovations.com)
- **Auto Tap for Trucks-** software that talks in generic J1708 to most engine/trans/ABS systems, gives codes and limited data stream. \$599 and includes the MD100 cable above. This is a good choice for independent garages that work on all makes because it gives you a basic software package and a comm cable that can be used for most IH applications except 98-02 hydraulic ABS. [www.autotap.com](http://www.autotap.com)

I'll forewarn you of what's coming in the future: As software becomes more complex, each software will require its own comm cable due to ever changing communications protocols. This has already happened with Allison Gen5 and Cummins, and is likely to become more widespread. Enjoy the time being where one cable does nearly everything, because that time will end in the future.

## **Other diagnostic tools you may need:**

- Breakout box for Navpak Engines ZTSE 4445 \$1502 ('98 -2004 single module ECM)
- Breakout box for '94-97 (3 box system) use a Ford car (pre-1995) 60 pin breakout box, available from SPX/OTC or Ebay cheap.
- Breakout box for 2005 up DT466/570 EGR engines: 96 pin DLC2 systems, ZTSE 4582A \$1343
- Breakout box for ESC (Multiplex computer) ZTSE 4477

## **Other engine specific tools you'll need for each engine family:**

**Note that DT466E and DT466 (EGR) are two completely different engines with a changeover date around 2005 model year. Most 2004 trucks have the DTE engine even though IH labels the EGR engine as 2004!**

### **DT466E/530E, 1996-2004:**

- Turbo Training's Tips and Tricks book for DT466E/530E
- ServiceMaxx, MD Fleet or Service Assistant, and a comm cable (see above)
- Diagnostic sheets, see chart below to choose which ones, as there are three families- 96-97 3 box, 98-2002 Navpak, and 2002-2004 NGV (The EGED 225 for DT NGV is no longer available from IH on paper due to a printing/supplier glitch. It is available in PDF.)
- ZTSE 4445 breakout box (\$1500) will be helpful
- Injector sleeve replacement tools from Iron-Tite call Rich at 440-526-0151
- Fuel suction test quick disconnect: The female Compucheck coupler can be purchased from your IH dealer under P/N 3376859 \$24.93 Compucheck fitting PN's- IH PN# Female ZTSE 4526 Parker PN#PD 242 Male- ZTSE 4542 Parker PN# PD343 Male straight ZTSE 4692
- Compression adapter, Part #: TU-15-25 Price: \$115.80- 800-645-1142 Star Products, 5501 21st Street Racine, WI 53406

### **DT466/570 EGR 2005 up:**

- Turbo Training Tips and Tricks book for DT466/570
- ServiceMaxx, MD Fleet or Service Assistant, and any RP1210 compliant comm cable
- ZTSE 4655 ICP fitting test kit
- EGES-285, EGES-290 Diagnostics sheets, see below
- Fuel Test quick disconnect: The female Compucheck coupler can be purchased from your IH dealer under P/N 3376859 \$24.93 Compucheck fitting PN's- IH PN# Female ZTSE 4526 Parker PN#PD 242 Male- ZTSE 4542 Parker PN# PD343 Male straight ZTSE 4692
- To properly access ECM/IDM voltages and use the Diag Sheets, you'll need breakout box ZTSE 4582A
- Use a vacuum bleeder to remove air from the cooling system (Air Lift)
- ZTSE 4725 HP oil "puck" tool (needed, but not required)

# Navistar Engine Diagnostic Forms

These forms are full color schematics and diagnostic charts, very helpful when performing diagnostics. They are included in ISIS, but not readable or printable. They are large full color 8 ½" x 17" and come in pads of 40 **from your dealer** for about \$15/pad. Some have been discontinued from IH, e-mail me for a PDF of these.

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## I-6 (DT466, 530, 570) Engine Diagnostic Forms

Model Years	Engine Model	Engine Serial No. Info	Publication No. and Form Type
1987-1992	DT/DTI 466 A and B series	not available	<b>CGED-390-2</b> , Diagnostic Analysis Guide
	DT/DTI/DTA 466 C series	0436665-0690519	<b>CGED-365-5</b> , Engine Performance Analysis Guide
1993	DT 408/466 and 530 series	850017-1193209	<b>EGED-115</b> , Performance Analysis Guide
1995-1997	DT 466E and 530E	931164-1075288	<b>EGED-150-1</b> , Performance Diagnostics
<b>Three Box ECM</b>	(Three Box System)		<b>EGED-155-1</b> , Electronic Control Diagnostics
<b>Single Module ECM 4700-4900, 2500, etc non-multiplexed dash</b>	DT 466E and 530E	1075289-1194038	<b>EGED-180-2</b> , Hard Start Diagnostics
1997-2002			<b>EGED-185-1</b> , Electronic Control Diagnostics
<b>NGV Multiplexed truck (4200, 4300, 4400, 7400, 7600, etc)</b>			

2001-2004 (note EGED225 has been on backorder for years, see PDF)	DT 466E and DT 530	1273511-above	<b>EGES-220</b> , Mechanical Diagnostics  <b>EGED-225</b> , Electronic Control Diagnostics
2005-later	DT 466, DT 570 and HT 570 (EGR)	2000001-above	<b>EGED-285</b> , Electronic Control Diagnostics  <b>EGES-290</b> , Mechanical Diagnostics

### V8 Engine Diagnostic Forms

Model Years	Engine Model	Engine Serial No. Info	Publication No. and Form Type
1983-1986	9.0 L	0005565-above	<b>CGED-335-4</b> , Diagnostic form
1982-1987	6.9 L	1001-445179	<b>CGED-355-5</b> , 6.9 L Engine Performance Analysis Guide
1987-1994	7.3 L	500079-1260423	<b>CGED-440-5</b> , 7.3 L Diesel Performance Analysis Guide  <b>CGED-470-4</b> , 7.3 L Solid State Glow Plug Troubleshooting Guide
1993-1997 Three Box System	T 444E	000500-634233	<b>EGED-130-1</b> , Hard Start / No Start & Performance Diagnostics  <b>EGED-135-1</b> , Electronic Control System Diagnostics
1997-2003 Single Box Controller	T 444E	634234-above	<b>EGED-195-1</b> , Hard Start / No Start & Performance Diagnostics  <b>EGED-200-1</b> , Electronic Control System Diagnostics
2002-2003	VT 365	0000082-112359	<b>EGED-245</b> , VT-365 Hard Start / No Start & Performance Diagnostics  <b>EGED-250</b> , VT-365 Engine Performance Diagnostics  <b>EGED-255</b> , VT-365 Electronic Control System Diagnostics

2004-later

VT 365 112360-  
above

**EGED-245** , VT-365 Hard Start / No Start &  
Performance Diagnostics

**EGED-250** , VT-365 Engine Performance  
Diagnostics

**EGED-255** , VT-365 Electronic Control System  
Diagnostics