

PERIPHERAL DEVICES & ACCESSORIES 8

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8.1 Carrying Accessories

There are a variety of carrying accessories to help the operator work safely and comfortably with the WORKABOUT PRO.

Carrying Accessory	Model Number
Hand Strap	WA6020
Pistol Grip	WA6001
Protective Vinyl Case	WA6090
Soft Shell Holster	WA6050

Table 8.1 Carrying Accessories



Important: *Do not use adhesives such as Loctite to secure the screws on carrying accessories. These chemicals may damage the plastic casing.*

8.1.1 Attaching The Hand Strap

The hand strap can be attached to the back of the WORKABOUT PRO to provide a secure means for operators to carry the hand-held.

The hand strap is attached to the back of unit using two Phillips head screws provided with this accessory.

Attaching The Hand Strap

- Use a Phillips screwdriver to attach the strap to the two threaded inserts on the back of the WORKABOUT PRO, near the top of the unit

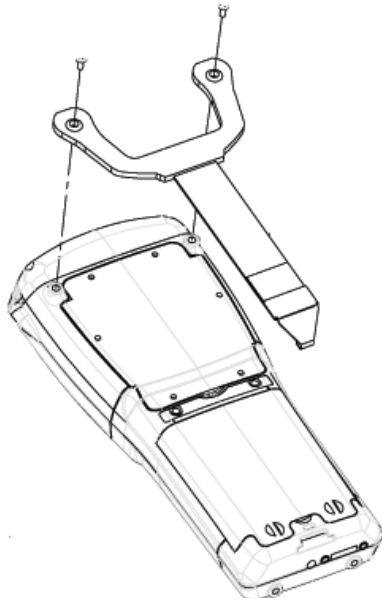


Figure 8.1 Securing The Hand Strap

- Stretch the hand strap toward the base of the WORKABOUT PRO, and hook the bottom of the strap into the slot near the base of the battery pack.

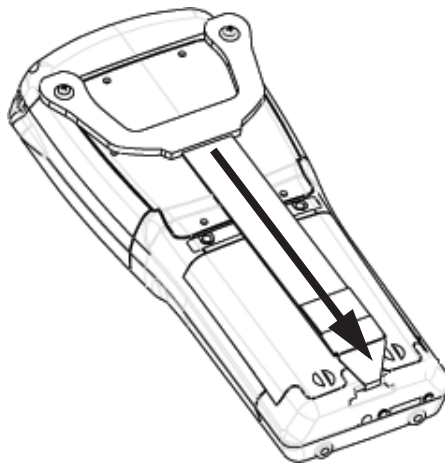


Figure 8.2 Attaching The Hand Strap

8.1.2 Attaching The Pistol Grip

The pistol grip is attached to the four threaded inserts on the back of the WORK-ABOUT PRO. Four Phillips head screws are provided with this accessory.



Figure 8.3 Pistol Grip



Note: *Prior to installation, make sure the trigger mechanism is securely snapped into the pistol grip body and that the trigger operates properly.*

Protective Carrying Case

- Position the pistol grip so that it fits snugly over the back of the unit and the holes in the pistol grip are aligned with the threaded inserts on the back of the WORKABOUT PRO.
- Tighten the screws to secure the pistol grip in place.

8.1.3 Protective Carrying Case

A carrying case is available for WORKABOUT PROs to shield the unit from damage. It is equipped with a soft plastic window to protect the unit display and keyboard.

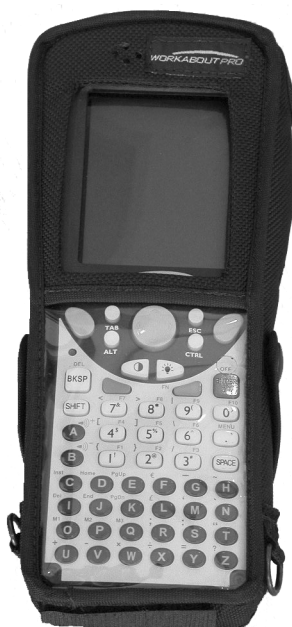


Figure 8.4 Carrying Case

8.1.3.1 Using The Swivel Belt Loop With The Carrying Case

The WORKABOUT PRO carrying case is equipped with two rings onto which you can attach a swivel belt loop so that you can hang the unit from your belt. If you prefer, you can also attach a belt clip to this accessory so that you can clamp the unit onto your waistband or belt. (rather than slide your belt through the belt loop).



Figure 8.5 Belt Loop And Belt Clip

- Clip the two hooks on the belt strap to the bottom of the carrying case.
- Slide your belt through the belt loop.



Figure 8.6 Attaching The Belt Loop

Alternatively, you can attach a plastic clip to the swivel belt loop and clip it to your waistband or belt.



Figure 8.7 Belt Clip

8.1.4 Soft Shell Holster

A soft shell holster with removable belt and swivel holster pad can be used to hang a WORKABOUT PRO with a pistol grip from you waist



Figure 8.8 Soft Shell Holster

- Insert the belt in the swivel holster pad.
- Attach the pad on either the left or right side of the holster case, depending on whether you are left- or right-handed.
- Fasten the belt comfortably around your waist. Slide the adjustable ring on the belt to tighten the holster in place.

8.2 The Batteries



Note: Review “Battery Specifications” on page 168 for detailed information.

The WORKABOUT PRO will operate with a Standard Lithium Ion battery pack, a High-Capacity Lithium Ion battery pack or three AA alkaline batteries. If you are using a Lithium Ion battery pack, it must first be charged.

In addition to the main battery, the hand-held is equipped with a rechargeable coin battery – a Maxell ML2032.

8.2.1 Lithium Ion Battery Safety Precautions



Important: *It is critical that this safety information be reviewed and that all warnings be strictly followed.*



Warning: **BATTERIES ARE CONSIDERED HAZARDOUS WASTE and must be returned to Psion Teklogix for proper disposal. All used batteries must be forwarded to one of the following offices:**

Psion Teklogix Inc.
2100 Meadowvale Blvd.
Mississauga, Ontario
Canada
L5N 7J9

Psion Teklogix Corp.
1810 Airport Exchange Blvd.
Suite 500
Erlanger, Kentucky
USA 41018

Psion Teklogix S.A.
La Duranne; 135 Rue Rene Descartes; BP 421000
13591 Aix-En-Provence
Cedex 3; France



Warning: **TO PREVENT the battery from leaking acid, generating heat or exploding, adhere to precautions listed below.**

- There is a risk of explosion if a WORKABOUT PRO battery is replaced with an incorrect type.
- The battery incorporates built-in safety devices. To ensure their proper function, do not disassemble or alter any parts of the battery.
- Do not short-circuit the battery by directly connecting any of the exposed terminals with metal objects such as wire. Do not transport or store the battery together with metal objects such as necklaces, hair pins, etc.
- Do not dispose of batteries in fire.
- Do not use or leave the battery near a heat source such as a fire or heater.

- Do not immerse the battery in water.
- When charging, use the battery charger specifically designed for the battery.
- Do not pierce, strike, throw or step on the battery.
- Do not directly solder the battery.
- Do not connect the battery to an electrical outlet, vehicle cigarette lighter, etc.
- Do not put battery into a microwave oven or pressurized container.
- Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacities or brands.
- Immediately remove the battery from the device or battery charger and stop use if the battery gives off an odor, generates heat, becomes discoloured or deformed, or in any way appears abnormal during use.
- Do not continue charging the battery if it does not recharge within the specified charge time.
- The battery may burst or ignite if the battery leaks. Always ensure that it is away from any exposed flames.
- If leaking electrolyte sprays into your eyes, rinse them with clean running water, and immediately seek medical attention.
- Do not store the battery in extremely high temperatures (e.g., a vehicle, strong direct sunlight, etc.). This may cause the battery to overheat or ignite, and it may also reduce the performance and service life of the battery.
- Do not use in areas where static electricity is greater than what the manufacturer guarantees.
- Keep batteries out of reach of children.

8.3 Chargers And Docking Stations



Important: *Keep in mind when ordering a charger or docking station, you must also order the appropriate power cord separately.*

Psion Teklogix offers a variety of chargers and docking stations for the WORKABOUT PRO. These include:

- Single Battery Charger – Model #WA3001
- Quad Battery Charger – Model #WA3004
- Desktop Docking Station – Model #WA4002
- Quad Docking Station – Model #WA4004

8.3.1 Installation – Chargers And Docking Stations

When installing a charger or docking station at your site, consider the following guidelines.

- Keep chargers and docking stations away from excessive dirt, dust and contaminants.
- Chargers will not charge batteries outside an ambient temperature range of 0° C to 45° C (32° F to 113° F). It is recommended that the charger or docking station be operated at room temperature – between 18° C and 25° C (64° F to 77° F) for maximum performance.

After unpacking your unit:

- Visually inspect the charger for possible damage.
- Install the IEC power cord and apply power.

8.3.2 Power Consumption Considerations

Check to ensure the mains circuit supplying chargers and/or docking stations is adequate for the load, especially if several chargers and docking stations are being powered from the same circuit.

- Quad charger – can consume up to 2A @ 120VAC or 1A @ 240VAC.
- Quad docking station – can consume up to 3A @ 120VAC or 1.5A @ 240VAC.

8.3.3 Operator Controls

WORKABOUT PRO docking stations and chargers have no operator controls or power switches.



8.3.4 Important Charger Safety Instructions

- **SAVE THESE INSTRUCTIONS** – This manual contains important safety and operating instructions for battery charger s.
- Before using the battery charger, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.
- The mains power cord shall comply with national safety regulations of the country where the equipment is to be sold.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in fire, electric shock, or personal injury.

- To reduce risk of damage to the electric plug and cord when unplugging the charger, pull the plug rather than the cord.
- Make sure the cord is positioned so that it is not stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not operate the charger with a damaged cord or plug. Replace immediately.
- Do not operate the charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; it should be inspected by qualified service personnel.
- Do not disassemble the charger; it should be repaired by qualified service personnel. Incorrect reassembly may result in electric shock or fire.
- To reduce risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
- An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in fire or electric shock. If an extension cord must be used, make sure:
 - The plug pins on the extension cord are the same number, size, and shape as those on the charger.
 - The extension cord is properly wired and in good electrical condition and that the wire size is larger than 16 AWG.
- Do not expose the charger to rain or snow.
- Do not place batteries in the charger if they are cold from extended exposure to a freezer or outside temperatures below 10°C (50°F). Allow them to warm up to room temperature for at least two hours.
- Do not use the charger if, after an overnight charge, any of the batteries feel warmer than the charger housing. The charger should be inspected by qualified service personnel.
- Do not use the charger if any of the batteries or the charger get more than luke-warm. The equipment should be inspected by qualified personnel.

8.4 Desktop Docking Station – Model #WA4002

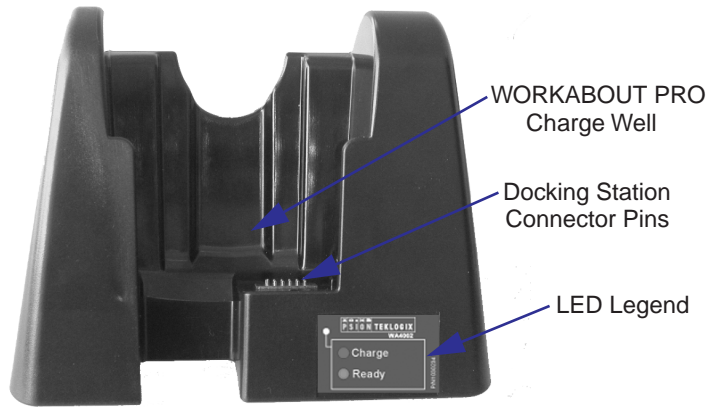


Figure 8.9 Desktop Docking Station



Note: *The desktop docking charger is shipped with its own user manual. It is critical that it be reviewed for additional information and updates.*

The desktop docking station is designed to charge the battery installed in the WORKABOUT PRO along with a spare battery pack.

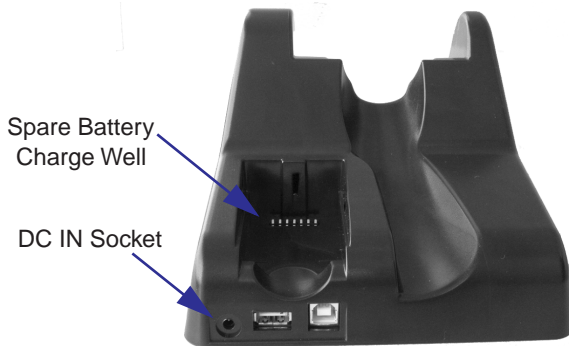



Figure 8.10 Back Of Desktop Docking Station

8.4.1 Charging A Battery Installed In The WORKABOUT PRO

- Insert the DC power cable to the DC IN socket on the desktop docking station. Plug the pronged end of the cable into an AC outlet.
- Slide the hand-held into the docking station, making certain that the LIF (Low Insertion Force) port on base of the WORKABOUT is securely seated on the docking station connector pins. An icon is displayed in the taskbar of the hand-held indicating that the unit is properly installed in the station –  This icon is only displayed when the unit is switched on.

The LED on the WORKABOUT PRO lights up indicating that the unit has external power and battery charging will begin. It is safe to leave the unit in the desktop docking station while it is not in use – the battery will not be overcharged.

8.4.2 Charging A Spare Battery

- Insert the battery in the spare battery charge well at the back of the docking station, aligning the contacts on the battery with the contacts in the spare battery charge well.

8.4.3 Battery Charge Duration

A fully discharged battery can take up to 5 hours to charge. The desktop docking station stops applying power to the battery when it is fully charged – there is no risk of overcharge if the battery remains in the charge well.

8.4.4 Charger LED Indicators



Figure 8.11 Battery Charge Status

The desktop docking station is equipped with a single dual-coloured LED indicator in the lower-right corner of the front panel.

Troubleshooting The Charging Operation Of The Dock

LED Behaviour	Charge Status
Off	No battery detected in the charge well.
Solid red	Charge in progress.
Solid green	Battery is fully charged.

Table 8.2 Desktop Battery Charger LED Behaviour

Note: *Battery charging continues whether the hand-held is switched on or off.*

8.4.5 Troubleshooting The Charging Operation Of The Dock

The quad battery charger troubleshooting section beginning on page 151 also applies to the charging behaviour of the desktop docking station.

8.4.6 Desktop Docking Station Ports

**Figure 8.12 Back of Desktop Docking Station**

The desktop docking station is equipped with two USB ports – a Host USB port to connect peripherals such as a printer, keyboard, etc. and a Client USB to connect the docking station to a PC.

8.4.7 Linking A WORKABOUT PRO To A PC

The desktop docking station can be connected to a PC so that you can exchange files in the same way that you would between PC drives. A USB cable to PC is included with your docking station.

To link the WORKABOUT PRO to a PC:

- Insert the hand-held in the desktop docking station.
- Insert the USB cable into the docking station Client USB connector. Attach the other end of the cable to a USB port on the PC.

You'll need to install connectivity software on your PC before you can pass information between the hand-held and the PC.

8.4.7.1 Using Microsoft® ActiveSync® To Work With Files

ActiveSync® – Microsoft PC connectivity software – can be used to connect the WORKABOUT PRO to PCs running this software. You'll be able to:

- View WORKABOUT PRO files from Windows Explorer.
- Drag and drop files between the WORKABOUT PRO and the PC in the same way that you would between PC drives.
- Back up WORKABOUT PRO files to the PC, then restore them from the PC to the hand-held again, if needed, and so on.



Note: *You'll need the USB setup utility to configure the .ini file. For information about this USB application, refer to Appendix C: USB Setup Application.*

To install ActiveSync, follow the step-by-step instructions provided with the program's setup wizard. Refer to the following website for details:
<http://www.microsoft.com/windowsmobile/resources/downloads/pocketpc/activesync35.msp>

8.4.8 Linking A WORKABOUT PRO To An Ethernet Network

An USB-Ethernet adaptor cable (WA4010) is available to connect the WORKABOUT PRO to an Ethernet network through the desktop docking station.



Figure 8.13 USB-Ethernet Adaptor Cable

Network Access

- Insert the adaptor's USB connector into the Host USB port on the desktop docking station.
- Connect your network Ethernet cable to the Ethernet port on the adaptor cable.

8.4.8.1 Network Access

The hand-held unit automatically detects insertion into the desktop dock and loads the appropriate drivers to communicate with the USB-Ethernet converters.

Network Addressing

The host application uses standard TCP/IP protocol to name, locate and communicate with a specific WORKABOUT PRO on the network.

If a link is established between a WORKABOUT PRO and a host, the application on the host and on the hand-held must have a recovery mechanism in the event that the WORKABOUT PRO is removed from the dock, interrupting the link.

8.4.9 Troubleshooting The Docking Station Operations

The indicators, applications and drivers required to use and monitor the desktop docking station as a *dock* (as opposed to a charger) are installed on the WORKABOUT PRO – no applications are present on the docking station itself.

8.5 Single Battery Charger – Model #WA3001



Figure 8.14 Single Battery Charger

The single battery charger is designed to charge a single battery. It has a DC IN socket and is equipped with one LED that indicates the status of the charge process.

8.5.1 Inserting A Battery In The Single Battery Charger

- Insert the DC power plug into the charger. Plug the pronged end of the power cable into an AC outlet.
- Install the battery, aligning the contacts on the battery with the contacts in the battery charge well.

8.5.2 Battery Charge Duration

It can take up to 4 hours to fully charge a battery. The single battery charger stops applying power to the battery when it is fully charged – there is no risk of overcharge if the battery remains in the charge well. The 75% charge indicator is handy if you need a quick recharge – a quick charge often takes less than one hour.

8.5.3 Charge Indicators – The LED

The LED on the top of the charger indicates battery charge progress.

LED Behaviour	Charge Status
Off	No battery detected in the charge well.
Solid green	Battery is fully charged.
Fast flashing green	Battery is charged to 75% capacity.
Slow flashing green	Charge in progress.
Solid red	Battery is outside ambient temperature range of 0° C to 45° C (32° F to 113° F).
Flashing red	Charge alarm indicating a charging circuit problem. Refer to “Troubleshooting” on page 151 for details.
Flashing red then green in a 3 second cycle	Power up test sequence.

Table 8.3 Single Battery LED Behaviour



Note: Battery charging continues whether the hand-held is switched on or off.

8.6 Quad Battery Charger – Model #WA3004



Table 8.4 Quad Battery Charger

The quad battery charger is designed to charge up to four Lithium Ion batteries at one time.



Note: *The gang charger is shipped with a user manual. It is critical that this manual be reviewed for additional information and updates.*

8.6.1 Charging Batteries

- Slide the battery into a charge well, aligning the contacts on the battery with the contacts in the charge well.

8.6.2 Battery Charge Duration

A fully discharged battery can take up to 4 hours to charge. The quad battery charger stops applying power to the battery when it is fully charged – there is no risk of overcharge if the battery remains in the charge well. The 75% charge indicator is handy if you need a quick recharge – a quick charge often takes less than one hour.

8.6.3 Charge Indicators – The LEDs

Each battery charge well is equipped with an LED to indicate the charge status of the battery. When a battery is inserted in the charger, the colour and behaviour of the LED associated with the charge well in use indicates the status of the charge. Refer to Table 8.3 on page 149 for details.

8.6.4 Troubleshooting

8.6.4.1 Excessive Charge Duration

The charger is equipped with a recalibration function – a function that fully discharges and then fully recharges the battery. This process is necessary to recalibrate the battery capacity gauge internal to the battery. The charger attempts recalibration when:

- the battery capacity is at less than 30%, and
- the battery has undergone more than 40 partial charge cycles since the last full discharge.

The recalibration function extends the charge time by up to 2 hours.

8.6.4.2 Indicator Flashing Red

If the indicator flashes red:

- Remove all batteries and disconnect the mains power cable.
- Wait at least 20 seconds, and then plug the cable in again.

If any of the charge well LEDs continue to flash red, the charger is defective and requires service. If all indicators are flashing red, there is a power supply problem and the charger requires service.

8.6.4.3 Power LED Does Not Light Up

- Remove all batteries, and unplug the charger.
- Connect another device to the mains outlet to ensure there is power.
- Remove the IEC mains power cable from the charger, and check it for damage.
- Reconnect the mains cable in the charger and mains outlet.

If the power LED still does not light up:

- Unplug the mains cable, and check the fuse at the rear of the charger.

If the fuse appears to be intact, the charger requires service.

8.6.4.4 Indicator Does Not Light When Battery Installed

- Remove the battery, and clean the contacts on the battery and the charge well.
- Reinstall the battery, and check that it is fully seated in the charger well.
- Inspect the charge well contacts for damage (are they bent, flattened, twisted or broken).
- Try inserting a battery that you know to be working in the charger well.
- Reconnect the mains power cable, and check that the charger well indicator flashes at powerup.

8.7 Quad Docking Station — Model #WA4004



Figure 8.15 Quad Docking Station



Note: *The quad docking station is shipped with a docking manual. It is critical that this manual be reviewed for additional information and updates.*

The quad docking station permits each of four docked WORKABOUT PROs to communicate with a 10/100 BaseT Ethernet network at greater than 2Mbps. It also provides sufficient power to operate and fast charge the batteries in the units.

8.7.1 Quad Docking Station Setup

After unpacking the unit:

- Visually inspect the unit for any damage.
- Install the IEC power cord and apply power.

A green indicator in the lower-right corner of the front panel lights up to indicate that power is present.

- Attach a CAT5 RJ45 network patch cable (supplied) between your network and the RJ45 jack on the rear of the dock.

A green LED is illuminated next to the RJ45 connector when a valid network link is established.


A user application must be loaded onto each WORKABOUT PRO that utilizes the quad dock for communication. When the network is connected and this application is loaded, the quad dock is ready for use.

8.7.2 Quad Indicators

The quad dock is equipped with a power indicator LED and RJ45 link and traffic indicator LEDs. When a valid network link is established, a green LED is illuminated next to the RJ45 connector.

8.7.3 Inserting A WORKABOUT In The Quad Docking Station

- Slide the WORKABOUT PRO into the cradle portion of the quad dock until lightly latched.

The hand-held detects that it is in a quad dock and displays the appropriate icon in the taskbar – . The LED on the hand-held unit lights up to show it has external power and may start charging the battery.

Interaction with the WORKABOUT PRO while in the quad dock is a function of the user application software used to communicate with the host network.

8.7.4 Network Access

The quad docking station has one 10/100 Ethernet port. You can insert up to four hand-held units. The hand-helds are connected to an internal USB hub. The hand-held unit automatically detects insertion into a quad docking station and loads the appropriate drivers to communicate with the USB/Ethernet converters.

8.7.4.1 Network Addressing

Although the USB converters have fixed Ethernet MAC addresses, there is generally no correlation between these addresses and a specific hand-held. The host application uses standard TCP/IP protocol to name, locate and communicate with a specific WORKABOUT PRO on the network.

If a link is established between a WORKABOUT PRO and a host, the application on the host and on the hand-held must have a recovery mechanism in the event that the WORKABOUT PRO is removed from the dock and the link is interrupted.

8.7.5 Battery Charging – LED Behaviour

The quad docking station supplies DC power to enable the WORKABOUT PRO internal fast charger. Charge status is displayed on the hand-held LED – the LED turns red while the battery is being charged and turns green once the charge is complete. If the battery is fully charged when the unit is inserted in the docking station, the LED flashes red for less than a second and then turns green. Battery charging continues whether the WORKABOUT PRO is switched on or off.

It can take up to 5 hours to fully charge the internal battery.

8.7.6 Troubleshooting

The indicators, applications and drivers required to use and monitor the docking station are installed on the WORKABOUT PRO – no indicators or applications are present on the docking station itself.

8.7.6.1 Network Link Unsuccessful

If a network link fails, the WORKABOUT PRO application alerts the operator that the link was unsuccessful.

8.7.6.2 Hand-Held LED Does Not Light When Docked

- Check that the quad docking station has power – is the Power LED on the docking station illuminated?
- Try inserting the WORKABOUT PRO in another well in the quad dock.
- Check for dirt or contamination on the docking contacts at the bottom of the WORKABOUT PRO. Wipe the contacts with a damp cloth if necessary.
- Check the pogo pins inside the dock cradle for dirt. Gently wipe with a damp cloth if they appear to be dirty or discoloured.

- Check that the pogo pins are not bent or damaged.
- Remove and reinsert the WORKABOUT PRO in the cradle, and check that the latch is holding the unit in place (the pogo pins must be compressed for proper contact).
- Make certain that the battery installed in the WORKABOUT PRO is not defective.

8.8 AC Wall Adaptor And Tether Cable



Figure 8.16 WORKABOUT PRO AC Wall Adaptor And Tether Cable

Connecting a wall adaptor (WA3220) and tether cable (WA3220) to your WORKABOUT PRO will supply AC power to your unit. The tether cable is equipped with a tether port so that you can attach a peripheral device to the hand-held while providing power. A power lead must be ordered separately.

Automotive Adaptor

- Insert the tether connector into the tether port on your hand-held. Tighten the screws to secure the cable in place.
- Insert the DC power plug into the DC IN socket on the tether cable, and plug the pronged end of the power cable into an AC outlet.

8.9 Automotive Adaptor



Figure 8.17 Automotive Adaptor

The automotive adaptor is an optional accessory that allows you to power your WORKABOUT PRO through your vehicle cigarette lighter.

- Attach a tether cable (see Figure 8.16 on page 155) to the base of the WORKABOUT PRO.
- Insert the automotive adaptor DC power plug into the DC IN socket on the tether cable.
- Insert the adaptor in your vehicle cigarette lighter outlet to power your unit.

8.10 The Vehicle Cradle



Figure 8.18 Unpowered Vehicle Cradle

The vehicle cradle is available in two versions – unpowered (WA1000) and powered (WA1010). A port replicator option is available for both types of vehicle cradle.

The vehicle cradle is a highly ruggedized, single station dock. Although it provides quick insertion and removal, the cradle holds the WORKABOUT PRO securely even when operated in high vibration environments.

8.10.1 Vehicle Cradle Mounting Recommendations



Warning: *Before mounting a vehicle cradle in a vehicle, there are a number of operator safety issues that require careful attention. An improperly mounted cradle may result in one or more of the following: operator injury, operator visibility obstruction, operator distraction and/or poor ease of egress for the operator. Pision Teklogix strongly recommends that you seek professional mounting advice from the vehicle manufacturer.*

Cable routing within a vehicle cab also requires careful consideration, especially for separately tethered scanners and other devices with loose cables. If you are unable to obtain suitable advice,

contact Psion Teklogix for assistance (see Appendix A: Support Services And Worldwide Offices). Note also that for better protection, the equipment should be mounted inside the vehicle roll cage.

Pedestal mounts are recommended for all fixed mount locations because they offer optimal operator access. In addition, for safety reasons, only pedestal mounts with fully locking joints should be used in vehicles. Always adjust the pedestal for the optimum viewing angle, and securely tighten the hex and wing screws.

The most effective way to mount the vehicle cradle is to use the four #8-32 threaded inserts on the rear of the unit. Bolts must not extend more than 10mm (3/8") into the cradle.

To accommodate the service loop of the connector cable, leave a 4" clearance at the bottom of the cradle. Leave a 7" (minimum) clearance at the top of the cradle to allow easy removal of the hand-held. Also remember to leave at least a 3" clearance at the sides of the cradle to allow activation of the release knobs. Refer to the detailed assembly instructions that are packaged with the cradle when selecting a mounting location.

8.10.1.1 Mounting Template

The vehicle cradle is shipped with detailed mounting instructions including a drill template.

8.10.2 Wiring Guidelines

Before installing cables between the cradle and other devices, review the following:

- Ensure that drilling holes will not damage the vehicle or its wiring.
- Protect cable runs from pinching, overheating and physical damage.
- Use grommets to protect cables that pass through metal.
- Use plastic straps and tie-downs to secure cables and connectors in their desired location, away from areas where they may get snagged or pulled.
- Keep cables away from heat sources, grease, battery acid and other potential hazards.
- Keep cables away from control pedals and other moving parts that may damage the cables or interfere with the operation of the vehicle.

8.10.3 Using The Vehicle Cradle

If your WORKABOUT PRO is equipped with a shoulder strap or cover, these accessories need to be removed before installing the unit in a vehicle cradle. There is no need to remove handstraps, pistol grips or tethered devices from the unit.

- Slide the WORKABOUT PRO into the cradle, and press firmly downward until it locks into place. On a vehicle, it's a good idea to pull up on the WORKABOUT PRO to be certain that it is secure.
- To remove the unit, press firmly on the RELEASE button on the front face of the unit until it releases from its latch. The hand-held will be slightly raised so that it can be removed.

8.10.4 Maintaining The Vehicle Cradle

Two latches in the cradle hold the WORKABOUT PRO firmly in place. Although these latches are designed for robustness and endurance, they will wear over time and will no longer lock the hand-held securely in the cradle. For replacement parts and instructions contact Psion Teklogix. Partial disassembly is required.

8.10.5 Powered Cradle Installation In High Voltage Vehicles



Warning: *Voltages exceeding 60VDC are considered hazardous. For powered cradle installations on vehicles with batteries above this voltage, ensure the powered cradle power connector is mounted in a dry location on the vehicle, or that the connector is insulated with an appropriate waterproof material after installation. The connector must also be installed out of the vehicle operator's reach. Exposing an accessible power connector to water or other liquids could create a hazardous situation resulting in serious injury or death.*

Installation of powered cradles in vehicles that operate above 60VDC require special consideration.

Due to the hazardous voltages present on these vehicles, it is necessary to ensure that the powered cradle power supply cable connector is not accessible to the vehicle operator, and does not get exposed to water or other liquids. This can be accomplished in one of the following ways:

- Ensure the power connector is installed in a dry location on the vehicle, away from the vehicle operator's reach (perhaps under a vehicle dash or in a sealed housing).
- Cover the power connector with a waterproof heat shrink material.
- Wrap the connector securely with a waterproof electrical tape in an area out of the vehicle operators reach.

Powered Vehicle Cradle Installation

All other installation requirements outlined in this document should also be followed for High Voltage vehicles to insure safe installation and operation of the powered cradle.

8.10.6 Powered Vehicle Cradle Installation

The powered cradle option is designed to allow the WORKABOUT PRO to be powered by a vehicle battery. The battery installed in the hand-held is also recharged by the vehicle battery. This option accepts DC power sources ranging from 10 to 55V, with optional pre-regulator.

The vehicle cradle can be ordered with the powered cradle option installed.



Warning: *Applying a voltage greater than that specified or reversing or reversing polarity may result in permanent damage to the cradle power option and will void the product warranty.*

8.10.6.1 Wiring Vehicle Power To The Cradle

A 1.8 meter (6 foot) extension power cable (PN 13985) is supplied with your powered vehicle cradle. This cable should be wired to a filtered, fused (maximum 10A) accessory supply on the vehicle. The power cradle draws no more than 8A (less if the accessory supply is greater than 12V). Any additional wiring, connectors or disconnects used should be rated for at least 10A.

The red lead of the power cable attaches to the positive vehicle supply. The black lead connects to the negative supply – this should be connected to a proper terminal block and not to the vehicle body. The power cradle is fully isolated and can be used with both negative and positive chassis vehicles.

You may have the option of connecting power before or after the ‘key’ switch. It is preferable to wire the power cradle *after* the key switch – that is, it cannot be turned on without the key on. However, if the operator switches the key off repeatedly for long periods during a shift, it may make more sense to wire the cradle *before* the switch.

Keep in mind that the WORKABOUT PRO will continue to operate with or without vehicle power as long as its battery has sufficient charge.

If an unfused power source must be used, a fuse assembly (PN 19440) must be added to the extension power cable (the fuse and instructions are supplied with the cable). Use only a 10A slow blow UL approved fuse in the fuse assembly.

8.10.7 The Port Replicator



Figure 8.19 Port Replicator

The port replicator (Model# WA4005) is an optional accessory that allows tethered devices as well as mounted peripherals (e.g., bar code printers or weigh scales) to be attached to the vehicle cradle. The replicator can be used with or without the cradle power option.

The functionality of the WORKABOUT PRO tether port is replicated into RS-232 serial interfaces by the port replicator. It provides the user with 3 DB9 serial interfaces as well as one Type B USB port (for connecting a Host device).

8.11 Bluetooth Peripherals

The WORKABOUT PRO C (a unit equipped with a colour display) – comes equipped with a Bluetooth radio, making it is possible to communicate with a variety of Bluetooth peripherals, including GSM/GPRS handsets, scanners, printers, and so on.



Note: *Bluetooth is **not** available for WORKABOUT PRO Ms*

The range of the Bluetooth radio is limited to approximately 5 meters.

Psion Teklogix provides built-in support for the Bluetooth peripherals listed below.

- GSM/GPRS universal handset
- Bluetooth printer

Keep in mind that Bluetooth and IEEE 802.11b radios both operate in the 2.4GHz band. Although the WORKABOUT PRO includes features to minimize interference, performance of the system will not be optimal if you use both radios simultaneously. Typically, when both radios operate in the hand-held at the same time, they cannot transmit simultaneously – this has a negative impact on overall system throughput. To minimize the impact on the backbone 802.11b network, Psion Teklogix recommends using Bluetooth peripherals that have low transaction rates (such as printers and scanners).

Bluetooth peripherals are configured using the Bluetooth control panel applet. Refer to “Bluetooth Setup” on page 78 for information about setting up your Bluetooth devices for communication. In addition, review the manual shipped with your Bluetooth device to determine the method used to associate with the WORKABOUT PRO host.

SPECIFICATIONS

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Note: *Performance specifications are nominal and subject to change without notice.*

9.1 Hand-Held Computer Specifications

Size

- Length: 8.7" (221mm)
- Width: 3" (76mm) at grip area tapering to 3.5" (90mm) at display area.
- Depth: 1.2" (31mm) at grip area tapering to 1.7" (44mm) at display area.
- Keypad area: 3" (75.5mm) width x 1.4" (36mm) depth

Weight

With battery: 16 oz. (454g); add 2.6 oz. (75g) with scanner expansion module; add 0.7 oz. (19g) with 802.11b CF card radio.

Operating System

Microsoft Windows CE .NET Version 4.2

Processor

- Intel Xscale PXA255

Power Management

- 3.8V Standard Capacity Li-ion rechargeable battery - up to 8hours of operation.
- 3.8V High-Capacity Li-ion rechargeable battery - up to 12 hours of operation.
- Advanced Smart Battery w/ gas gauge.
- Quick swap battery packs.
- Built-in fast charger.
- Rechargeable, user-replacable internal coin battery.
- Also accepts 3 AA Alkaline batteries.

Communication

Ports	USB Host port on base for tethered USB devices (printers, etc.) Low Insertion Force Docking Station Port with: <ul style="list-style-type: none">- USB Device Port- USB Host port- Power in/out
-------	--

Environmental

Operating Temperature	14°F to 122°F (-10°C to +50°C)
Storage Temperature	-13°F to 140°F (-25°C to +60°C)
Rain And Dust Resistance	IEC 529, classification IP54.
Humidity	5% - 95% RH non-condensing
Shock	Multiple 4 ft. (1.2m) drops to polished concrete.

Approvals

Safety	UL60950-1, CSA C22.2 No 60950-1
EMC	FCC Part 15 Class B EN 55022 EN 55024
Laser	CDRH 21 CFR 1040 Class II and IEC 60825-1:1993+A1:1997+ A2:2001 Class 2
In Vehicle Cradle	E Mark

9.2 Radio Specifications

802.11b Direct Sequence Spread Spectrum

Transmit Power	100mW max for USA 50mW max for EU countries
Frequency Range	2.400-2.474 for USA, Canada 2.400-2.484GHz for EU
Channels	1 to 11 for USA, Canada 1-13 for EU countries 1-13 or 14 for Japan
Data Rates	1,2,5.5 and 11Mbps

9.3 SE 1223HP Scanner Specifications

Physical Characteristics	SE 1223HP (Decoded)
Dimensions:	0.76 in. max. H x 1.51 in. max. W x 1.38 in. max. D 1.93 cm max. H x 3.84 cm max. W x 3.51 cm max. D
Weight:	1.33 oz. max. (37.7 gm max.)
Performance Characteristics	
Light Source:	Visible Laser Diode 650 nm
Scan Rate:	35 (\pm 5) scans/sec (bidirectional)
Scan Angle:	42° \pm 2°
Scan Patterns:	Linear
Minimum Print Contrast:	Minimum 20% absolute dark/light reflectance measured at 650 nm
Symbologies:	UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI UCC/EAN 128, Tri-Optic Code 39
Programmable Parameters:	Laser On Time, Aim Duration, Power Mode, Trigger Mode, Bidirectional Redundancy, Symbology types/lengths, Data Formatting, Serial Parameters, Beeper Tone
Interfaces:	12 position ZIF connector. Symbol Standard SSI Interface with logic level serial data communications plus trigger, beeper and decode LED signals

User Environment	
Ambient Light, Artificial:	450 ft. candles (4,844 lux)
Ambient Light, Sunlight:	10,000 ft. candles (107,640 lux)
Operating Temperature:	-22° F to 140° F (-30° C to 60° C)
Storage Temperature:	-40° F to 140° F (-40° C to 60° C)
Humidity:	5% to 95% noncondensing
Power, Input Voltage:	5.0 VDC ± 10%
Power, Input Current:	110 mA typical
Power, Standby Current:	130 µA max.
Shock:	2,000 G
Regulatory	
Laser Classification:	Intended for use in CDRH Class II and IEC Class 2 devices
Electrical Safety:	UL, VDE, and CUL recognized component laser

9.4 Battery Specifications

9.4.1 Standard Battery Pack

Chemistry Capacity	Lithium Ion Polymer Battery (Li-Polymer)
	1750 mAh nominal at 350mA discharge 20 °C (68° F) to 2.8V(minimum)
Voltage	3.7V nominal (2.8V min. to 4.2V max.)
Cell Configuration	1S2P (2 parallel connected cells)
Cell Type	Lithium-ion Polymer Battery
Max. Discharge Current	1A (-10° C to 60° C) -- (14° F to 140° F)
Charge Algorithm	CC to CV
Max. Charge Voltage	4.2V +/- 0.05V
Max. Charge Current	800 mA
Discharge Cut-off	2.6V min – DS2761 protection circuit initiates
Recommended Fast Charge	1550 mA for 2.5hrs
Max. Fast Charge Time	3.0 hrs.
Recommended Termination Taper Current	50 - 100 mA
Recommended Charge Termination Timeout	30 min.

Charge Temperature	0° C to 45° C (32° F to 113° F)
Discharge Temperature	-20° C to 60° C (-4° F to 140° F)
Recommended Termination Taper Current	50 - 100 mA
Recommended Charge Termination Timeout	30 min.
Charge Temperature	0° C to 45° C (32° F to 113° F)
Discharge Temperature	-20° C to 60° C (-4° F to 140° F)
Storage Temperature	-20° C to 60° C (-4° F to 140° F) Storing battery at elevated temperatures is not recommended.
Cycle Life	300 cycles minimum with no degradation below 80% of nominal capacity based on standard charge / standard discharge rates (to 2.8V) @ 25°C
Impedance	45mΩ max. @ 1kHz AC only the battery cell
Total Internal Resistance	200 m Ωmax., fully charged new pack (including cell resistance and protection circuit resistance) @ 1kHz AC
High Temperature Recovery	>60% nominal capacity after 20 days @ 60° C (full charge) -- (140° F)
Low Temperature Recovery	>80% nominal capacity after 72 hours @ -20° C (full charge) -- (-4° F)
Capacity recovery	-20° C to 60° C (-4° F to 140° F) >80% capacity recovery within 1 month -20° C to 45° C (-4° F to 113° F) >75% capacity recovery within 3 month -20° C to 20° C (-4° F to 68° F) >70% capacity recovery within 1 year

9.4.2 High-Capacity Battery Pack

Chemistry Capacity	Lithium Ion Polymer Battery (Li-Polymer)
	2625 mAh nominal at 350mA discharge 20° C (68° F) to 2.8V(minimum)
	1800 mAh nominal at 300mA discharge at -20° C to 2.8V (minimum)
Voltage	3.7V nominal (2.8V min. to 4.2V max.)
Cell Configuration	1S3P (3 parallel connected cells)
Cell Type	Lithium-ion Polymer Battery

Chapter 9: Specifications
High-Capacity Battery Pack

Max. Discharge Current	1.7A (-10° C to 60° C) -- (14° F to 140° F) 0.5C (-20° C to 60° C) -- (-4° F to 140° F)
Charge Algorithm	CC to CV
Max. Charge Voltage	4.2V +/- 0.05V
Max. Charge Current	900 mA
Discharge Cut-off	2.6V min – DS2761 protection circuit initiates
Recommended Fast Charge	2325 mA for 4.0 hrs
Max. Fast Charge Time	5.0 hrs
Recommended Termination Taper Current	50 - 100 mA
Recommended Charge Termination Timeout	30 min.
Charge Temperature	0° C to 45° C (32° F to 113° F)
Discharge Temperature	-20° C to 60° C (-4° F to 140° F)
Recommended Termination Taper Current	50 - 100 mA
Recommended Charge Termination Timeout	30 min.
Charge Temperature	0° C to 45° C (32° F to 113° F)
Discharge Temperature	-20° C to 60° C (-4° F to 140° F)
Storage Temperature	-20° C to 60° C (-4° F to 140° F) Storing battery at elevated temperatures is not recommended.
Cycle Life	300 cycles minimum with no degradation below 80% of nominal capacity based on standard charge / standard discharge rates (to 2.8V) @ 25°C
Impedance	35mΩ max. @ 1kHz AC only the battery cell
Total Internal Resistance	210 m Ωmax., fully charged new pack (including cell resistance and protection circuit resistance) @ 1kHz AC
High Temperature Recovery	>60% nominal capacity after 20 days @ 60° C (full charge) -- (140° F)
Low Temperature Recovery	>80% nominal capacity after 72 hours @ -20° C (full charge) -- (-4° F)

Capacity recovery	-20° C to 60° C (-4° F to 140° F) >80% capacity recovery within 1 month -20° C to 45° C (-4° F to 113° F) >75% capacity recovery within 3 month -20° C to 20° C (-4° F to 68° F) >70% capacity recovery within 1 year
-------------------	---

9.4.3 Maxell ML2032 Rechargeable Coin Battery

Model	ML2032
System	Lithium Ion
Nominal Voltage (V)	3 V
Nominal Capacity (mAh*)	65
Nominal Discharge Current (µA)	200
Charge/Discharge Cycle Lifetime	
Depth of Discharge = 10%	1,000 (6.5 mAh discharge) (total capacity 6,500 mAh)
Depth of Discharge = 20%	300 (13 mAh discharge) (total capacity 3,900 mAh)
Temperature Ranges	
Operating	-10° C to 60° C (14° F to 140° F)

* Nominal capacity indicates duration until the voltage drops down to 2.0V when discharged at a nominal discharge current at 20° C (68° F).

SUPPORT SERVICES AND WORLDWIDE OFFICES

Psion Teklogix provides a complete range of product support services to its customers worldwide. These services include technical support and product repairs.

A.1 Technical Support

Technical Support for Mobile Computing Products is provided via e-mail through the Psion Teklogix customer and partner extranets. To reach the website, go to www.psionteklogix.com and click on the appropriate Teknet link on the home page. Then click on the “Log-in” button or the “Register” button, depending on whether you have previously registered for Teknet. Once you have logged in, search for the “Support Request Form”.

A.2 Product Repairs

International

For technical support outside of Canada or the U.S.A., please contact your local Psion Teklogix office listed on our worldwide website:

<http://www.psionteklogix.com>

Click on the heading labelled ‘Contacts’ to choose a Psion Teklogix technical support representative closest to you.

Canada/U.S.A

Canadian and U.S. customers can receive access to repair services, by calling the toll-free number below, or via our secure website (see *Technical Support*, above).



Note: Customers calling the toll-free number should have their Psion Teklogix customer number or trouble ticket number available.

Voice: 1 800 387-8898 (press option ‘2’)

Fax: 1 905 812-6304

A.3 Worldwide Offices

COMPANY HEADQUARTERS AND CANADIAN SERVICE CENTRE

Psion Teklogix Inc.
2100 Meadowvale Boulevard
Mississauga
Ontario
Canada L5N 7J9

Tel: +1 905 813 9900
Fax: +1 905 812 6300

Email: salescdn@psion.com

NORTH AMERICAN HEADQUARTERS AND U.S. SERVICE CENTRE

Psion Teklogix Corp.
1810 Airport Exchange Boulevard
Suite 500
Erlanger, Kentucky
USA 41018

Tel: +1 859 371 6006
Fax: +1 859 371 6422

Email: salesusa@psion.com

INTERNATIONAL SUBSIDIARIES (see also www.psionteklogix.com)

Psion Teklogix S.A.
La Duranne
135 Rue Rene Descartes
BP 421000
13591 Aix-En-Provence

Cedex 3; France
Tel: +33 4 42 90 88 09
Fax: +33 4 42 90 88 88

E-mail: tekeuro@psion.com

PORT PINOUTS

B.1 Standard Battery Contact Pin Definition

PIN #	Signal Name	Description
1	P+	Power Pin for Battery Pack Positive
2	P+	Power Pin for Battery Pack Positive
3	DQ	One-wire Interface Data Pin
4	T	GND
5	P-	Power Pin for Battery Pack Negative
6	P-	Power Pin for Battery Pack Negative
7	PS	Power Switch Sense Pin

B.2 High-Capacity Battery Contact Pin Definition

PIN #	Signal Name	Description
1	P-	Power Pin for Battery Pack Negative
2	DQ	One-wire Interface Data Pin
3	T	GND
4	P+	Power Pin for Battery Pack Positive
5	PS	Power Switch Sense Pin
–	–	Plastic Rib
6	P-	Power Pin for Battery Pack Negative

B.3 LIF (Low Insertion Force) Port Pinout

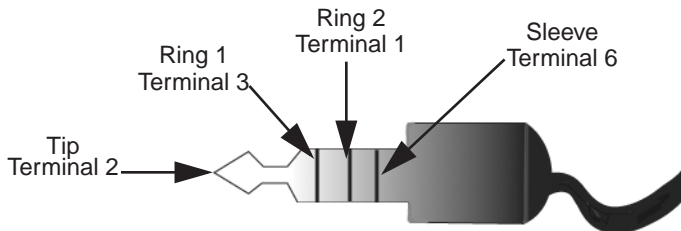
PIN #	Signal Name
1	Ground
2	Ground
3	USB Host Data Plus, For connecting USB devices
4	USB Host Data Minus, For connecting USB Devices
5	USB Host Power, for powering USB devices (5V, 100mA Max)
6	DC Power in, for supplying power to WORKABOUT PRO / charging battery (5V, 3A)
7	DC Power in, for supplying power to WORKABOUT PRO / charging battery (5V, 3A)
8	LIF Detect, determines if a device is attached to the LIF
9	USB Device Data Minus, for operating the WORKABOUT PRO as a USB device
10	USB Device Data Plus, for operating the WORKABOUT PRO as a USB device
11	Ground
12	Ground

B.4 Tether Port Pinout

PIN #	Signal Name
1	Ground
2	USB Host Data Plus, For connecting USB Devices
3	USB Host Data Minus, For connecting USB Devices
4	USB Host Power, for powering USB devices (5V, 100mA Max)
5	TX Data } TX Data and RX Data are only available on terminals with no internal Bluetooth
6	RX Data }
7	Tether Detect, determines if a device is attached to the Tether port
8	DC Power In, for supplying power to WORKABOUT PRO / charging battery (5V, 3A)

PIN #	Signal Name
9	DC Power In, for supplying power to WORKABOUT PRO / charging battery (5V, 3A)
10	DC Power In, for supplying power to WORKABOUT PRO / charging battery (5V, 3A)
11	Not used.
12	Not used.
13	Not used.
14	Not used.
15	Not used.
16	Ground
17	Ground
18	Ground

B.5 Audio Mini-Plug



USB SETUP APPLICATION

C.1 USB Setup

The USB Setup application (PN 1000997) is used to update a Windows PC so that it can connect to a Psion Teklogix WORKABOUT PRO.

System Requirements

- Windows® 2000 or XP
- ActiveSync 3.1 or later

The two driver classes that control USB communication are `usbstor` (for communication with a device running `BooSt`) and `wceusbsh` (for communication through ActiveSync with a device running Windows CE .NET). These drivers must be updated with WORKABOUT PRO-specific information so that the WORKABOUT PRO can be recognized by your PC.

The install program:

- updates copies of the device installation scripts `usbstor.inf` and `wceusbsh.inf` with Psion Teklogix-specific information,
- sets up a USB connection between the PC and the WORKABOUT PRO, *and*
- installs the WORKABOUT PRO as a device on your PC. This may require notifying the PC OS that the device should be reinstalled and then reconnecting the USB device.

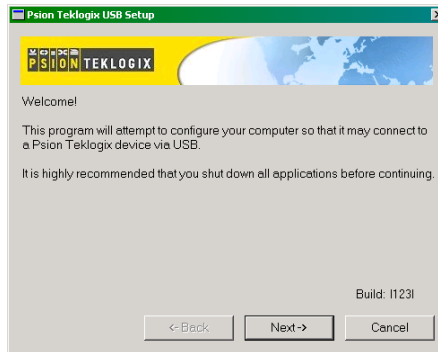
C.1.1 Launching The Application

The log file is initialized and the program introduction is written to it.

C.1.2 Pre-Installation: Updating *usbstor.inf* And *wceusbsh.inf*

1. Welcome Dialogue Box:

You can click on the <Back> and <Next> buttons to navigate between the pre-install windows. At any time during the pre-installation process, you can tap on <Cancel> to exit the program.

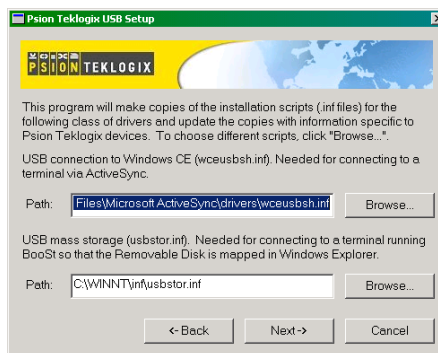


- Shut down all other software programs – especially ActiveSync – to avoid a restart request during installation.
- Tap on the <Next> button.

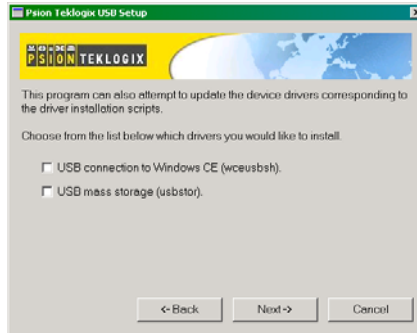
The program checks that ActiveSync is installed and that it is a supported version – 3.1 or later. If the version installed on your PC is not supported, you'll need to exit the USB Setup application, and install a later version of ActiveSync.

2. Device Driver INF File Selection Dialogue Box:

This dialogue box allows you to choose the paths of the appropriate *inf* files. Default file paths are provided in this dialogue box.



- If necessary, tap on the <Browse> buttons to select different paths for the .inf files.
3. Device Driver Install Selection Dialogue Box:
You can choose to have the device drivers installed immediately by selecting the check box (✓), or you can leave the check box blank and Windows will install the WORKABOUT PRO the next time it is connected. It is recommended that the device be installed immediately.

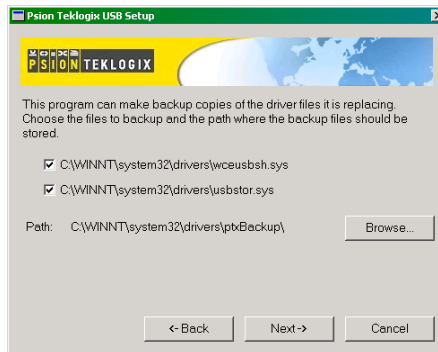


- Select the drivers you want to update – wceusbsh and usbstor.
- Tap on the <Next> button.



Note: *None of the drivers are updated by default. To complete the process, you must establish USB connections.*

4. Device Driver Backup Selection Dialogue Box:
The USB Setup application will attempt to back up the driver .sys files before attempting the installation. It specifies which files it will try to back up and the location to which it will back them up.



Note: *Both drivers are selected for backup by default. The backup directory is <system directory>\drivers\ptxBackup.*

C.1.3 Installation: **WORKABOUT PRO As A Device On Your PC**

1. Install Dialogue Box:

The `.sys` files you selected are copied to the backup directory. If an unknown error occurs during the backup, you are asked whether you'd prefer to cancel the install or continue with the process. The `wceusbsh.inf` and `usbstor.inf` files are updated.

2. If you indicated that the `wceusbsh` driver should be installed, the Install dialogue box appears again. The USB Setup application will attempt to install the drivers immediately. This will succeed only if a valid USB connection to the device that is running Windows CE .NET exists.
- If the install fails due to an unknown error, the install for this particular driver is aborted.
 - If the install fails because there was an inappropriate USB connection, there are two possibilities:
 - An appropriate USB connection was never established between the PC and the **WORKABOUT PRO** running Windows CE .NET. In this case, when an appropriate USB connection with this device exists, Windows will automatically attempt to install the device driver.
 - An appropriate USB connection exists between the PC and the **WORKABOUT PRO** running Windows CE .NET, but it has since been severed. Windows may or may not attempt to automatically install the device drivers on the next appropriate USB connection.
 - A window is displayed where you can tap on <Cancel> to abort the `wceusbsh` driver installation and continue. It also contains instructions to boot your device into Windows CE .NET and establish a USB connection between the device and the PC. When you create the appropriate connection, Windows automatically installs the device drivers. The 'Found New Hardware' wizard may appear. Your only interaction with this window is to click on the <Finish> button.
 - If this is the first appropriate connect between the device and the PC – i.e., there was no previous devnode for the device in the system – the <Continue> button is activated as soon as the connection is made. Where there was a devnode present in the system and it has been marked for reinstall, the <Continue> button will not become active until Windows has

completed the driver installation and the device is no longer marked for reinstall. Only one devnode per device can be 'unset' when the device drivers are finally installed.

3. If you indicated that the `usbstor` driver should be installed, the same steps as described above are carried out for `usbstor` except that the WORKABOUT PRO must be running BooSt. (Press and hold down the <SCAN> <BLUE> <ENTER> keys for a minimum of 6 seconds to launch the BooSt program.) Keep in mind that a device running BooSt has a different hardware ID than when it is running Windows CE .NET.

C.1.4 Post Installation

1. Done Dialogue Box:
This dialogue box indicates the success or failure of the installation.
 - To view the log file, tap on the <Log File> button
 - To exit the program, tap on the <Exit> button.

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