



## Lowest Total Lifecycle Cost



Question: How can I reduce cost & improve customer satisfaction for plate equipment?

*Answer: Utilizing NES Worldwide's 'Lowest Total Lifecycle Cost' Business Model.*

**In today's challenging economy, plate manufacturers & full solutions dealers must save money wherever possible!**

One means for OEMs to save on prepress platemaking equipment is to expand the capability (imaging latitude, chemical resistance, and run length) of on-press-developed *thermal* processless plates—thus *avoiding the necessity of plate processing equipment* in the first place. (This is a great prospect for printers, but *not so much* for NES Worldwide.)

Another method prevalent in North America (where most equipment is “loaned” to customers as a part of their plate supply contract) is to **expand the use of remanufactured equipment** (or refurbished)—saving up to 60% up-front cost compared to the cost of new equipment. More on the difference between remanufactured & *refurbished* later.

### **How to Achieve Sustainable Equipment Cost Savings**

First, we must define how to properly measure the cost savings. NES Worldwide believes that the only TRUE economic measure of effective long-term cost savings must balance up-front purchase costs with the after-purchase costs of transportation, installation, field service calls, replacement spare parts, remote level 1 & 2 technical support, product return, warehousing, and remanufacturing costs. **NES Worldwide defines this key metric as the “Lowest Total Lifecycle Cost”** of (plate processing) equipment. NES Worldwide prides itself in delivering equipment that is designed & manufactured to be easily installed & serviced, and that offers over six (or more) potential customer contract cycles because of its durability, and design for remanufacturability. We do not design equipment with components of *questionable longevity*, or tanks made of PVC—to maintain a true “green approach” to complete lifecycle design. NES Worldwide strongly urges OEMs and dealers to *promptly disregard* suppliers who offer 10% up-front cost savings, but deliver products that consume massive amounts of internal & external resources in field service, technical support, and command huge spare parts markups—for equipment that *may not even be remanufacturable*. Buying equipment that is 10% cheaper **up-front**, but may only last through one customer contract (and causes a field service nightmare in the mean time), will not deliver long-term profit to the shareholders of OEMs or the dealers' owners.

### **Lowest Total Lifecycle Cost of Prepress Platemaking Equipment:**

$$LTLC = \sum (K_a + K_{ul}) + (K_b + K_i + K_s + K_p + K_t + K_d) + ((K_r + K_i + K_s + K_p + K_t + K_d) * R) + K_{gs}$$

Where:

- $K_a$  = cost of Accreditation testing (including inception costs, materials, technical staff, imaged plates & chemistry)
- $K_{ul}$  = cost to Underwriter's Laboratory (or equivalent) safety inspection & acquire their approval rating
- $K_b$  = cost to Buy equipment (purchase price, inbound duty & freight, customs clearance, transportation cost)
- $K_i$  = cost to Install (including site inspection & modification, delivery, setup, tech install, processing optimization)
- $K_s$  = cost to Service the equipment (service calls caused by equipment reliability issues during customer's contract)
- $K_p$  = cost of replacement spare Parts (total installed cost of non-warranty parts replaced during customer's contract)
- $K_t$  = cost for Technical support (level 1 & 2 plate system troubleshooting & system optimization)
- $K_d$  = cost to Decommission, return freight (common carrier vs. padded van) to warehouse for later remanufacturing
- $K_r$  = cost to Remanufacture the equipment to “good as new” quality (versus refurbishment or “dust-off” and ship)
- $R$  = Remanufactured Lives = # of times equipment is remanufactured *and redeployed* at future customer accounts
- $K_{gs}$  = cost of the “Green Scrap” process to assure an ecologically sound & economically optimal scrapping process

**Note:** The Lowest Total Lifecycle Cost excludes the “soft-costs” of *unreliable processing equipment* associated with poor customer perception, excessive service technician utilization, and potential chargebacks to the OEM because of press downtime—and even lost plate sales contracts to competition. *These “soft costs” can add up very quickly!*



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Accurately measuring the **current total cost** of plate equipment is the first step in reducing the **total lifecycle costs**.

Annual costs can be derived by dividing the total lifecycle cost by the number of years the equipment is expected to be needed (weighing both the remanufacturability of that specific equipment and the future plate portfolio product roadmap). NES Worldwide has remanufactured a single (serial numbered) processor over six times in thirteen years—providing OEMs with **six customer contracts worth of ~50% cost savings** (compared to the cost of loaning new equipment) by reusing a single processor frame, tank, sheet metal, and components. Preheating or post-baking ovens, stackers, chillers, conveyors & turners can experience the same or longer lifecycles, depending on the particular plate processing & conveyance requirements.

The next step involves **identifying the areas for cost savings** (design specifications that affect up-front purchase price/cost, or component reliability that drives service costs, or overall design to reduce remanufacturing costs, etc.). Working in partnership with your current equipment manufacturers will allow companies to reduce costs on new equipment purchases as well as on the legacy equipment install base. A *key caveat* here is to understand the balance (and sometimes tradeoff) between original component reliability and the impact on after-install service and spare part costs & subsequent impact on remanufacturing costs. Another factor that must be weighed here is the impact on UL or CE approval—and the potential requirement to have the equipment tested again to ensure compliance if any components are changed.

NES Worldwide uses monthly **“Quality First” (or “Q1”) Conference Calls** with its customers to focus on “Total Lifecycle Cost Management” in a cooperative partnership. This process is a forum within which to discuss & agree on any changes in business and/or technical direction. This monthly process will examine issues of: Quality (including field service feedback), Cost (total lifecycle cost), Delivery, Cycle Time & Continuous Improvement Projects. A major component of these calls is to examine the specifications of the existing equipment & to agree on cost savings alternatives (by platform), and a timeline to phase these into production. If there are opportunities to change the quality specification for remanufactured equipment in order to reduce costs further, NES Worldwide works in cooperation to help develop the business case for these changes. We have prided ourselves in delivering improved equipment rebuild quality year-over-year, while holding costs constant or *reducing them slightly* (except for OEM-requested configuration changes) for the last five years.

### Impact of a Robust Monthly Supply & Operation Process (S&OP) Forecast on Total Lifecycle Costs

NES Worldwide works with its OEM & Dealer customers to continuously improve their equipment forecast accuracy. This enables both companies to benefit from increased purchase price synergies on components, effective scheduling of assembly labor to match surge capacity, and avoidance of express shipment of equipment to end-user customers (because of completely un-forecast demand).

With a **Robust Monthly S&OP Process**, NES Worldwide can also ensure that OEMs order remanufactured equipment (when “cores” or “hulks” are available) instead of new—and save 50% or more in the process.

Without such a process, equipment suppliers like NES Worldwide experience a monthly whip-saw effect in labor scheduling, parts procurement, and logistics management—completely defeating any cost savings opportunities associated with the ~20% total costs that are *NOT locked-in* during the equipment design phase.

NES Worldwide has also worked with several OEMs to set up **flexible electronic kanban (or E-Kanban, “Just In Time”) production management systems**. Integrating E-Kanban systems into our ERP systems allows for real-time demand signaling across the supply chain and improved visibility. Data pulled from E-Kanban systems can be used to optimize inventory levels by better tracking supplier lead and replenishment times. *It provides the right supply at the right time!*



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### Equipment Remanufacturing vs. Refurbishing

*Out of box quality should never be a crap-shoot!* The impact of equipment performing poorly (or failing) at install has an indelible impact on customer perception & satisfaction—and can erode a supplier’s Brand Image in the marketplace. The “costs of external failure” include tangible costs (customer complaints, warranty or downtime claims, product recalls and customer returns) and intangible costs (lost opportunities and diminished reputation).

**NES Worldwide believes that every OEM or dealer deserves the assurance** that they are providing equipment to their end user customers with **a high level of predicted reliability**. This will cause the highest end-user satisfaction with the plate system being adopted, and result in the lowest total lifecycle cost of plate equipment for the OEM or dealer. In order to provide this assurance to OEMs and dealers, NES Worldwide employs a comprehensive remanufacturing process for all of the equipment that it rebuilds. A definition of how each process differs will help to clarify here:

**Equipment Refurbishing** usually includes a quick functional test of the equipment (to determine which components *are definitely not functioning* and require replacement), a general cleanup (of widely-varying thoroughness), resurfacing or recovering of processor rollers, and a dust-off or touch-up of the equipment’s exterior (for scratches or dents, etc.), before packing & shipping the unit to customers. The issues presented by refurbishing equipment include:

- a.) If the equipment does not “look & work” *like new* at the customer install, the field service rep. and customer may inappropriately attribute ANY difficulties with the install or plate optimization to the processor or oven.
- b.) If customers lack confidence in the initial quality of the equipment, they may be “looking for” future problems.
- c.) This can lead to a dramatic increase in negative feedback from the customer & field service organization.
- d.) Refurbishment can possibly hide quality problems *inside the unit itself* that could lead to safety issues later.
- e.) Refurbishment makes it difficult to offer a warranty on the equipment (for unknown component durability).
- f.) Refurbishment may therefore diminish the Brand Image of the OEM, dealer & the refurbishing company itself.

**Equipment Remanufacturing:** NES Worldwide works with all of its OEM or dealer partners **to develop Comprehensive Remanufacturing Processes** to meet their stringent quality requirements for each piece of plate processing equipment, preheating or post-baking ovens, or accessories in the portfolio. NES Worldwide has over thirteen years’ experience in remanufacturing preheating and post-baking ovens for thermal offset plates, and has developed a robust procedure to ensure that only the highest quality equipment are delivered to end-user customer installations.

- Every unit is stripped completely to the frame and component level. All parts are inspected and a determination made on their suitability for reuse. Worn or damaged parts are discarded. Reusable parts are cleaned, power-washed, tumbled, and/or sandblasted as required.
- Sheet metal and framework are sanded and repainted using a powder-coat and bake process for high finish quality as well as superior chemical and abrasion resistance.

#### Plate Processors

- Components are thoroughly inspected (using NES Worldwide’s *Q1 inspection process*) and are then either reused, repaired or replaced (depending on the quality specification of the OEM or dealer customer).
- The cleaned, refinished and new components are consolidated in the breakdown area and sent to the build station as a complete kit where the build technician assembles the processor using a build checklist.
- At this point the machine is “wet-tested,” or run through numerous cycles while the pressure settings, speeds, cycle times, flow rates, etc. are checked and set. Final fit and finish is checked before final Q. C. Inspection.

#### Preheating & Post-Baking Ovens

- The plate conveyance “slide bed” is completely removed from the oven, stripped, and repainted (with wet spray and/or powder coat paint as necessary) in the OEM or dealer customer’s corporate trade dress.
- The following components undergo a stringent analysis to determine whether replacement is required: the heater element, electronic controller, cooling fan retrofit, on/off switch with light, digital readout, potentiometer, idler bar assembly, drive bar assembly, blower motor bearing, conveyor drive motor, misc. electrical fittings and hardware, misc. finish work & decals, misc. mechanical fittings & hardware.

Only through a **stringent remanufacturing process** can OEMs achieve *predictable reliability & lowest total lifecycle cost*.

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### Innovation as the TRUE Cost Driver

NES Worldwide emphasizes to all of its global customers an essential principle of “Strategic Cost Management” that states that **product innovation drives total (lifecycle) costs downward at a much greater pace** than supply chain optimization or contracted procurement.

~80% of a product’s costs are “locked in” or frozen during the initial design phase—and an equipment manufacturer’s only available “degrees of freedom” are manufacturing scheduling, assembly lot size efficiencies, and using a reliable forecast to negotiate lower raw material and component costs. This will drive 4X the total cost reduction opportunities than an effective S&OP process & component cost management offer.

**NES Worldwide would like to share our >30 years experience in developing new Equipment Systems**, Plate Products, and Chemistry Products with our OEM customers and full solution dealers worldwide. Our team’s diverse experience includes working for offset plate manufacturing companies (like Eastman Kodak Company, Horsell-Anitec, etc.), commercial & newspaper printers, third-party equipment service companies, and prepress equipment design & mfg. companies which is a true differentiator of NES Worldwide—as compared to the background of our competitors.

Here are a few examples of the innovative systems that NES Worldwide is currently developing / offering globally:

- The **TOPAZ platform** from NES Worldwide for **thermal preheat OR no-preheat plates** is a diptank processor configuration with extremely high durability (up to 80,000m<sup>2</sup> annual plate volume/unit), with a design based on a highly successful straight-through thermal processor design with over 3,600 units installed worldwide.
- The **ONYX platform** from NES Worldwide for **violet photopolymer plates** is another program that carries a *lower up-front purchase price AND lower total lifecycle cost than competitive units* than currently offered by our competitors. It has been working well in commercial and newspaper customer accounts processing up to 25,000m<sup>2</sup>/year violet photopolymer plates in the US & Europe for almost two years now. ONYX processors also offer convertibility from violet to chemfree—and back to provide customers with the ultimate in flexibility.
- The **EMERALD platform** from NES Worldwide for **violet chemistry-free plates** carries a *lower up-front purchase price & lower total lifecycle cost than competitive units*—and was initially shown at DRUPA 2008 (“finishing” the Agfa Violet Chemfree plates LIVE on ECRM’s booth). The EMERALD “finishing unit” is a bespoke chem-free system with broad OEM compatibility, targeted at accounts up to 25,000m<sup>2</sup>/year violet chem-free plates.
- The **OPAL platform** from NES Worldwide for **thermal chemistry-free plates** offers customers the flexibility to wash plates off-press & provide finishing solution (gum) if needed, for accounts up to 25,000m<sup>2</sup>/year.
- The **DIAMOND Computer to Plate Processing System** that NES Worldwide launched at Print ’09 shares a common design & deliver the lowest total lifecycle cost across ALL offset plate processing platforms—conventional negative, conventional positive, straight-through thermal, diptank thermal, thermal chemistry free, violet photopolymer, or violet chemistry-free. This common platform (*which can be field-retrofitted* from diptank to straight-through **or** from thermal to violet) will dramatically simplify field service, spare parts management, procurement and logistics, as well as overall equipment technical support.
- NES Worldwide has expressed its *Strategic Intent* to **expand our Remanufacturing “Center of Excellence”** that currently exists in the USA to our **UK manufacturing facility**—without any investment from our OEM or dealer customers—to expand the current *50% cost savings per unit (of remanufactured cost compared to new)* in the Euro-zone & Export. We are hoping that this program will be adopted by our OEM & dealer customers in 2009.

**Please contact us to discuss how NES Worldwide can help YOU achieve your Lowest Total Lifecycle Cost!**

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