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Transmission Subassembly is Fully Protected During Shipping and Automated Handling

Custom automation tray designed for efficient processing by robotic and lift-assist automation; sealed stack prevents quality-compromising contaminants

As automotive transmission parts make their way from the component supplier's facility to the OEM's transmission assembly plant, they must be protected from the rigors of the road and from any contamination. Creative Techniques Inc, an Auburn Hills, Michigan-based producer of custom returnable packaging and material handling products, has designed and produced a custom shipping/automation tray for a transmission manifold subassembly that addresses the need for strict quality assurance standards coupled with seamless integration with automated material handling processes.

Loading and Shipping

Repeatable part positioning, and reliable integration with robotic material handling, are prime objectives. The manifolds are loaded into tray nests by a multi-axis robot at the component supplier facility. Tray exteriors are designed for highly accurate alignment within the pallet conveyor system, with adequate clearances for robotic gripper tooling.

Since the manifold subassembly has a number of pronounced edges, special urethane inserts within the nests are used to prevent shaving debris that could contaminate parts. The polypropylene trays are stacked, two per layer (on a 45" x 48" base pallet) and five high, and capped with a dust cover that seals out airborne contaminants during shipping to the truck transmission assembly facility.

Unload and Assemble

At the assembly line, lift-assist equipment is used by operators to both destack the trays and unload the manifold subassemblies from each tray. Posts in the tray are used to guide the lift-assist jaws to prevent accidental contact and potential damage to the exposed electronics within the subassembly. The proper orientation of the trays and the subassemblies they hold is assured since both the urethane nest inserts and the trays themselves are designed with a "force orientation" feature that prevents trays from being stacked incorrectly and parts from being mis-oriented. Accurate location of the parts allows the operator to rely on preset stops as he or she uses the lift-assist automation.

Thousands of the trays are in use for this component at the transmission facility. Creative Techniques' shipping and in-process automation trays are pre-engineered in a variety of exterior sizes, with nests designed for the specific part or part family. This modularity ensures that tooling costs are less than for a fully dedicated pallet. Outer trays are typically produced using the Structural Foam process, a highly efficient low pressure molding process for large parts that provides rigid material handling trays and dunnage with a hard surface for long service life. Structural Foam also reduces the cost of tooling.

Other Creative Techniques' returnable packaging experience for the automotive industry includes transmission, axle/differential, and body and assembly applications. Product protection, improved ergonomics, reduction of solid waste, and efficient interface with material handling processes are key reasons why manufacturers are moving away from disposable packaging.

About Creative Techniques, Inc.

Headquartered in Auburn Hills, Michigan, Creative Techniques, Inc. is an ISO-9001 certified industry leader in the design and manufacture of custom returnable packaging and material handling products. Its 19-year history of experience and innovation includes the development of custom injection molded and structural foam containers, pallets and trays. The company serves a growing number of diverse industries where custom returnable packaging is required, including automotive, rubber and tire, food, pharmaceutical, appliance, consumer electronic manufacturing and processing industries. For more information, contact Creative Techniques at (248) 373-3050, or visit the company's website at www.creativetechniques.com.



Each ½ size tray (two trays to a standard 45" X 48" base pallet) holds five transmission subassemblies (only three shown in photo) in an alternating orientation. Two stacked trays shown; complete stack has five layers plus a dust cover (and lid). Automation trays designed and produced by Creative Techniques, Inc.

