Parts Preparation and Shipping Standards for the Automotive Recycling Industry

Developed in Collaboration By:

Engines

1. Inspect

a. Ensure stock # matches the work order
b. Confirm the interchange description on the work order matches the part
c. Confirm work order comments match or special instructions have been completed
d. Roll over/rotate: NOTE: Before rotating an engine, consult manufacturer recommendations to prevent damage to timing or other internal components. In general, the engine should be rotated clockwise from the harmonic balancer unless otherwise indicated by the manufacturer. Use an engine rotating tool to roll the engine over two (2) complete revolutions.
e. Inspect Cylinder Head(s) for any gasket leaks
f. Inspect engine block, mounting brackets and bases for cracks or breaks.
g. Confirm all included parts are included and undamaged. Replace any damaged item. If the component will not be replaced, contact the supervisor or salesperson before continuing. Recycler indicates if any turbos/superchargers are included.
    i. Engine Assemblies include:
        1. Block
        2. Internally Lubricated Parts
        3. Oil Pan
        4. Cylinder Head(s)
        5. Integral wiring harnesses when possible
        6. Valve Cover(s)
        7. Intake Manifold
        8. Timing Cover(s)
        9. Fuel Injection Components
        10. Throttle Body
        11. Harmonic Balancer
    ii. Engine assemblies are NOT assumed to include:
        1. Compressor
        2. Starter
        3. Power Steering Pump
        4. Alternator
        5. Exhaust manifold (unless catalytic converter is not integral)

2. Prepare

a. Remove all obviously broken or damaged parts possible after approval. Do not remove good parts that would make installation easier for the customer.
b. Remove the following if damaged or cut (after having been approved for sale)
    i. Wire(s)/Wire Harness Throttle Body Hose(s)
    ii. Coil Pack(s)
    iii. Bracket(s)
    iv. Sensor(s)
c. Confirm the engine has been drained of all fluids. If not, drain all fluids.
NOTICE - Any mechanical component not drained could subject the part to refusal on behalf of transportation company(s)

d. Use properly sized red plugs to cover any critical openings (including accessory items). Use adhesive tape where plugs don't fit.

3. Clean

a. Pressure-wash the entire engine to remove any oil or grease. Recommend using a hot pressure washer, commercial degreaser or non-heated pressure washer or a combination of these to properly wash the engine.
b. Use an air hose with an air chuck, or an air hose with a blow gun equipped with a rubber tip to remove excess moisture.
c. Complete a final check for cracks or breaks that might have gone unnoticed prior to cleaning
d. Some facilities prefer to turn the engines over again after cleaning to confirm everything is OK and no moisture has penetrated the unit.

4. Tagging & Identification

a. Apply your store's custom stamp on the back of cylinder heads and the bell housing area using a customized metal stamp
b. Place stock numbers on unit - block and both cylinder heads are recommended
c. Apply either heat tabs using heat tab glue. Place in an inconspicuous location. A minimum of one heat tab on the block is recommended. Cover the back of the heat tab with glue and apply it to a clean surface area on the block. Note that there are different tabs for diesel and gasoline engines.
d. Use wire or zip tie to secure all engine installation instructions, fluid drain warnings & warranty tags

5. Shipping

a. Use a standard 30x20 Large Engine / Trans pallet
    i. If the unit is oversized or uncommon in shape, pallet reinforcement / alteration is recommended to ensure stabilization during transportation
b. Use no fewer than two banding straps to secure the unit.
    i. Ensure banding straps are not tightened over critical fragile exterior components like plugs or sensors that may break when pressure is applied
c. It is NOT appropriate to ship any drivetrain on tires

Transmissions

1. Inspect

a. Ensure stock # markings on trans case or bell housing match
b. Confirm stock number/ purchase order number matches the work order
c. Confirm the interchange description on the work order matches the part
d. Confirm work order comments match or special instructions have been completed
    i. TCM's should be noted when included
e. Transmission assemblies include:
    i. Transmission case
    ii. All internally lubricated parts
    iii. Extension and tail housings
    iv. Transmission pan
    v. Torque Converters (AT)
f. Inspect the transmission for cracks in the case/housing, damage to the pan, and any cut wiring or damaged sensors/external parts
    i. If damage is found, contact supervisor or salesperson before continuing
g. Move the shift selector through all the detents to make sure shifting is smooth
h. When possible, remove the pan to completely drain all oil, and proceed with the following defect checks:
    i. No more than ¼ teaspoon of metal shavings
    ii. No more than ½ teaspoon of friction plate material
    iii. No shavings larger than a grain of rice
    iv. No distinct "Burnt" smell
i. If ANY of the above issues are discovered, contact supervisor or salesperson before continuing
    i. NOTICE - Any mechanical component not drained could subject the part to refusal on behalf of transportation company(s)
j. Following inspection clean the pan and reseal

2. Prepare

a. Remove all obviously broken or damaged parts possible after approval. Do not remove good parts that can make installation easier for the customer.
b. Remove any of the following if damaged or cut (after having been approved for sale):
    i. Unnecessary hoses, wiring, or brackets
    ii. Broken sensors
    iii. Any other loose, broken, or damaged external parts
c. Use properly sized red plugs to cover any critical openings (including accessory items). Use adhesive tape where plugs don't fit.
d. Ensure torque converter is set in trans and secured with a properly fit bracket

3. Clean

a. Pressure-wash the entire unit to remove any oil or grease. Recommend using a hot pressure washer, commercial degreaser or non-heated pressure washer or a combination of these to properly wash the transmission
b. Use an air hose with air, chuck or an air hose with a blow gun equipped with a rubber tip to remove excess moisture.

c. Complete a final check for cracks or breaks that might have gone unnoticed prior to cleaning

4. Tagging and Identification

a. Ensure the correct stock number is visible on the torque converter and the transmission
    i. Write “O/I” on case to denote completed inspection when applicable
b. Apply your store’s custom stamp on the housing where appropriate
c. Use wire or zip tie to secure any installation instructions, fluid drain warning & warranty tags

5. Shipping

a. Use one of the following standard pallets:
    i. Small Transmission - 24x32
    ii. Medium Transmission - 26x40
    iii. Large Standard Engine / Transmission - 30x20
b. If the transmission is oversized or uncommon in shape, pallet reinforcement / alteration is recommended to ensure stabilization during transportation
c. Use no fewer than two banding straps to secure the unit
    i. Ensure straps are not tightened over critical fragile exterior components like plugs or sensors that may break when pressure is applied

Axle Assemblies

1. Inspect

a. Ensure stock # markings on rear are correct and matching across entire unit with the work order
b. Confirm interchange description on work order matches the part and any special instructions have been completed
c. Confirm the gear ratio matches the requested axle on the order
d. Assembly includes:
    i. 4x4 Front Axle FWD
        1. Differential housing & all internally lubricated parts
        2. Axle and axle tubes
        3. Spindle
        4. Knuckle assemblies
    ii. 4x4 Front Axle Carrier type
        1. Carrier Case and all internally lubricated parts
    iii. Rear axle assembly
        1. Housing and internally lubricated parts
        2. Axle and axle tubes
        3. Attached sway bars
        4. Brake backing plates
e. Inspect the axle, keeping an eye out for any defects which would require the supervisor or salesman be notified:
    i. Bends in the beam
    ii. Bent or broken brackets
    iii. Advanced corrosion of parts critical to functionality / installation
f. Remove the axle cover to drain all oil, and proceed with the following defect checks:
    i. No discolored or mixed oil
    ii. No distinct “burnt” smell
    iii. No presence of metal debris
    iv. If possible, spin the axle link to ensure no grinding/lockups
    v. No extensive pitting of pinion/ring gears
g. Clean the cover and replace

2. Prepare

a. If painting the unit:
    i. Ensure its completely descaled prior to spraying
    ii. Ensure its dry prior to spraying
    iii. Use low gloss black paint only
    iv. Re-apply stock numbers immediately after drying is complete
b. Remove all unnecessary brake/fluid lines that will have to be replaced
c. Cables: remove any cables that are rusty or non-functional, leave them secured if in good shape and complete. Cut the brake cable an inch or two or as short as possible from the backing plate when necessary. Customer presentation is the key.
d. Plug any critical openings to prevent moisture from getting inside unit
e. Ensure drums or rotors are secured to the axle by tightening at least one lug

3. Clean

a. Pressure-wash the entire unit to remove any oil or grease. Recommend using a hot pressure washer, commercial degreaser or non-heated pressure washer or a combination of these to properly wash the transmission
b. Complete a final check for cracks or breaks that might have gone unnoticed prior to cleaning

4. Tagging and Identification

a. Ensure the correct stock number is visible on the beam and axle pan
    i. Write “O/I” on pan to indicate inspection was completed
b. Use wire or zip tie to secure all installation instructions, fluid drain warning & warranty tags
c. Stamping of beam/narrow side of pan plate. Do not stamp anywhere that will dent/sustain damage.

5. Shipping

a. Use one of the following standard pallets:
    i. Small Rear End - 64x20
    ii. Large Rear End - 72x24
b. If the rear axle is oversized or uncommon in shape, pallet reinforcement / alteration is recommended to ensure stabilization during transportation
c. Use no fewer than two banding straps to secure the unit
    i. Ensure straps are not tightened over any critical fragile exterior components like plugs or sensors that may break when pressure is applied

Carriers / Transfer Cases

1. **Inspect**
    a. Ensure stock # matches the work order
    b. Confirm the interchange description on the work order matches the part
    c. Confirm work order comments match or special instructions have been completed
    d. Inspect the unit for cracks/damage to the case/housing, and any cut wiring or damaged sensors/external parts
        i. Motors are to be included unless otherwise noted

2. **Prepare**
    a. Remove any of the following (after having been approved for sale):
        i. Unnecessary hoses, wiring, or brackets
        ii. Broken sensors
        iii. Any other loose, broken, or damaged external parts
    b. Use properly sized red plugs to cover any critical openings (including accessory items). Use adhesive tape where plugs don't fit.

3. **Clean**
    a. Pressure-wash the entire unit to remove any oil or grease. Recommend using a hot pressure washer, commercial degreaser or non-heated pressure washer or a combination of these to properly wash the transmission
    b. Complete a final check for cracks or breaks that might have gone unnoticed prior to cleaning

4. **Tagging and Identification**
    a. Ensure the correct stock number is visible on the unit
    b. Stamp the unit when possible
    c. Use wire or zip tie to secure all installation instructions, fluid drain warning & warranty tags

5. **Shipping**
    a. Use one of the following standard pallets for all items weighing over 75lbs:
        i. Small Transmission - 24x32
        ii. Medium Transmission - 26x40
        iii. Large Standard Engine / Transmission - 30x20
    b. If the unit is oversized or uncommon in shape, pallet reinforcement / alteration is recommended to ensure stabilization during transportation
    c. Use no fewer than two banding straps to secure the unit
        i. Ensure straps are not tightened over critical fragile exterior components like plugs or sensors that may break when pressure is applied

Suspension, Crossmembers, Steering & Drive Shafts/Axles

1. Inspect and Clean

a. Ensure stock # matches the work order
b. Confirm the interchange description on the work order matches the part
c. Confirm work order comments match or special instructions have been completed
d. Assemblies include:
    i. Rear Suspension Assemblies
        1. Strut
        2. Coil Spring
        3. Strut Mounts
        4. Spindle
        5. Hub and Bearing Assembly
        6. Control Arm
    ii. Complete Independent Rear
        1. Right and Left Rear Suspension Assemblies
        2. Crossmember - if applicable
    iii. Steering Column
        1. All levers and switches
        2. Key Cylinder
        3. Column to first disconnect at steering gear
e. Inspect all units for abnormalities, rust, and wear & tear
    i. Steering Gear Rack - check:
        1. Splines intact
        2. Seals intact - no leakage
        3. No unusual bends in the arms
        4. Housing, mounts and plugs all intact
        5. CV Joints rotate freely
    ii. Crossmember - check
        1. No irregular bends or gouges
        2. No cut arms / bolts remaining
    iii. Suspension - check
        1. Ball joints, hubs, and any other joints move properly
    iv. Driveshafts/Axles - check
        1. All joints and protective boots are intact and move properly
        2. No leaking fluids
f. Any rust that is determined to be acceptable by salesperson should be treated with a wire brush
g. Pressure-wash the entire unit to remove any oil or grease
h. Complete a final check for cracks or breaks in the ball joint/boot that might have gone unnoticed prior to cleaning
i. If painting the unit:
    i. Ensure its completely descaled prior to spraying
    ii. Ensure its dry prior to spraying
    iii. Use low gloss black paint only
    iv. Re-apply stock numbers immediately after drying is complete

2. Tagging and Identification

a. Ensure the correct stock number is visible on the unit

3. Shipping

a. Knees / Complete Assemblies
    i. Use one of the following standard pallets:
        1. Small Transmission - 24x32
        2. Medium Transmission - 26x40
        3. Large Standard Engine / Transmission - 30x20
    ii. Use no fewer than two banding straps to secure the unit
b. Steering Gear Rack
    i. Housing should be protected and wrapped with packing material
    ii. Joints & boots should be protected with packing material
    iii. Smaller racks may be boxed
c. Hubs / Arms / Individual Suspension parts
    i. If the part is small, it is not required to be palletized
    ii. When shipping to NA it should be wrapped and boxed
d. Drive shafts / Axles
    i. Joints & boots must be protected with packing material
    ii. When shipping any jointed or 2-piece axle or driveshaft, you must attach the unit to a cut-to-length 2x4(or similar piece of wood) to prevent shipping damage

Section Cuts / Cabs / Beds

1. Inspect and Clean

a. Confirm part description and interchange information on work order matches the part and any special instructions have been completed
b. Assemblies include:
    i. Front End
        1. Complete Front Bumper
        2. Header Panel (if applicable)
        3. Grille
        4. Hood & hinges
        5. All lighting and mounts
        6. Left and right fenders
        7. Core support
        8. Unibody rails through shock towers
        9. Condenser
        10. Radiator / cooling fans
    ii. Rear Clip
        1. Complete Rear Bumper
        2. Decklid/Tailgate/Hatch Assembly with hinges
        3. All lighting and mounts
        4. Left and Right Quarter Panels
        5. Trunk floor
        6. Rear unibody frame rails
        7. Back glass
        8. Inner and outer roof panel
        9. Body floor pan to first seam
    iii. Truck Cab
        1. Complete cab shell and cowl section
        2. Windshield posts
        3. Roof assembly
        4. Rear cab panel
        5. Both rockers & floor pan
    iv. Bed / box
        1. Bedsides
        2. Floor pan
        3. Tailgate
        4. Front bed panel
        5. All lighting and mounts
        6. Fuel door
c. Remove all stickers, tape, glue residue not described
    i. OK to leave small typical dealership decals
    ii. OK to leave manufacturer labels, NTO or otherwise
d. Remove any other cosmetic aftermarket materials
    i. decorative air dams
    ii. window rain guards
    iii. Loose bed covers
    iv. window tinting
    v. fender flares etc.

e. Any loose broken glass in assemblies should be removed prior to sale; remnants must be covered using duct tape to prevent harm while handling
f. Any sharp edges from section cuts must be covered with duct tape to prevent harm while handling
g. Thoroughly wash and degrease body components inside and out
    i. Trim panels / interior components included in assemblies must be cleaned and free of trash & debris

2. Tagging and Identification

a. Ensure the stock number is written in an inconspicuous place

3. Shipping

a. Use a pallet that is appropriately sized to match the part being shipped
    i. Avoid using pallets that are too big for the part being shipped as they needlessly take up transportation space
    ii. To protect parts from side impact damage during transportation, body parts should not overhang the sides of the pallet
b. Use no fewer than two binding straps to secure the part to the pallet - use a buffer like cardboard or Styrofoam to prevent the strap from damaging painted surfaces or glass

Body Panels - Doors, Fenders, Hoods, Bumpers

1. Inspect and Clean

a. Confirm part description and interchange information on work order matches the part and any special instructions have been completed
b. Check other assembly components:
    i. Hoods
        1. Ensure under side heat shield is intact
        2. Hinges are not included unless otherwise specified
        3. Latch is to be included - check for bends / rust
        4. Aftermarket shields/guards/road rash protection must be removed unless inventoried as such.
    ii. Doors
        1. Handle is to be included and working unless otherwise noted
        2. Hinges are to be included unless welded or otherwise noted
        3. Door trim panels and door switches are not required to be included
        4. Mirrors are not included and should not be shipped attached to doors
        5. Rain guards are to be removed unless inventoried with “rain guards”.
    iii. Decklids / tailgates
        1. Ensure lighting is intact and described accordingly
        2. Hinges are to be included unless otherwise noted
    iv. Fenders
        1. Liners are not required unless otherwise noted
            a. If included, liners should be 100% intact
    v. Bumpers
        1. Rebar & absorber (if applicable)
        2. Grilles
        3. Lighting
c. Any loose broken glass in assemblies must be removed prior to sale - remnants must be covered using duct tape to prevent harm while handling
d. Remove all stickers, tape, glue residue
    i. Small typical dealership decals are OK to leave
e. Remove any other cosmetic aftermarket materials
    i. Decorative air dams
    ii. Window rain guards
    iii. Window tinting
    iv. Fender flares etc.
f. Thoroughly wash and degrease body components inside and out
    i. Trim panels / interior components included in assemblies must be cleaned and free of trash & debris

2. Tagging and Identification

a. Ensure the stock number is written in an inconspicuous place

3. Shipping

a. Large / oversize body panels may be shipped using appropriately sized pallets if desired
b. Any door or tailgate which fits inside panel armor must be shipped as such unless Panel Armor is not available. In the absence of panel armor, completely pad and wrap the part.
c. Fenders, decklids and hoods are required to be wrapped for shipping to ensure maximum protection while traveling on the trailering system
d. Use a pallet that is appropriately sized to match the part being shipped
e. Avoid using pallets that are too big for the part being shipped as they needlessly take up transportation space
f. To protect parts from side impact damage during transportation, body parts should not overhang the sides of the pallet
g. Use no fewer than two binding straps to secure the part to the pallet - use a buffer like cardboard or Styrofoam to prevent the strap from damaging painted surfaces or glass

Lighting

1. Inspect and Clean

a. Confirm part and lens description, as well as interchange information on work order, matches the part and any special instructions have been completed
b. Inspect for any broken or missing components including tabs, brackets, guide pins, bulbs & ballast
c. Thoroughly wash and degrease as necessary to remove dirt and debris
d. Check for moisture inside the lens which may indicate a crack or damage to any seals
e. Lens should be buffed (if necessary) and polished and the housing should be cleaned thoroughly

2. Tagging and Identification

a. Stock number or PO number should be engraved or written on the housing

3. Shipping

a. Do NOT shrink wrap lights as this often leads to broken housing components
b. All lighting must be boxed
c. At least 2-3 inches worth of packing space should surround the unit inside the box
    i. To quickly assess your box size - use your index, middle, and ring finger as a minimum width check between the outer box wall and the light
d. Be careful not to overpack with material as this can apply pressure to housing components ultimately leading to breakage
    i. To ensure you've included enough packing material, make sure the unit doesn't move around inside the box after sealing with tape. If you can feel weight shifting around it may be a good idea to add more material to stabilize the unit.

Wheels

1. **Inspect and Clean**
    a. Wheels do not include caps unless inventoried as such
    b. Confirm part description and interchange information on work order matches the part and any special instructions have been completed
    c. All tires (unless otherwise noted or SPARE) must be removed from wheel prior to shipping
    d. Visibly inspect the front and back lips for any bends
    e. Thoroughly wash and degrease as necessary to remove dirt and debris
    f. Wheels should be polished to minimize any surface imperfections

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written using small lettering on the inside of the wheel close to the valve stem when possible
3. **Shipping**
    a. All wheels should be protected and boxed
        i. At least 1-2 inches worth of packing space should surround the unit inside the box
        ii. Consider using a small pallet when sending 3 or more steel wheels to a customer

Mirrors

1. **Inspect and Clean**
    a. Confirm part description as well as interchange information on work order matches the part and any special instructions have been completed
    b. Inspect for any broken or missing components including guide pins, mounts, plugs, and indicator lights
    c. Remove any aftermarket covers / blind spot attachments
    d. Thoroughly wash and degrease as necessary to remove dirt and debris
    e. Mirror should be polished, and the housing should be cleaned thoroughly

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written on the inner mounting portion
    b. Do NOT mark the glass

3. **Shipping**
    a. All mirrors must be boxed
    b. At least 2 inches worth of packing space should surround the unit inside the box
        i. To quickly assess your box size: Use your index, middle, and ring finger as a minimum width check between the outer box wall and the mirror

Interior Parts - Seats, Consoles, Misc.

1. **Inspect and Clean**
    a. Confirm part description as well as interchange information on work order matches the part and any special instructions have been completed
        i. Oftentimes seats will be sold for the use of the attached motor and track assemblies
        ii. Seatbelts are not included with the seat assembly
        iii. Headrests are included in the seat assembly
    b. Clean the part as thoroughly as possible
        i. Interior components will rarely be able to be restored to like new condition
        ii. Ensure irreversible wear and tear has been described
            1. Grease marks
            2. Heavy cushion denting
            3. Rips or tears in material
            4. Broken adjustable components / levers
            5. Broken mounting tabs or brackets
    c. Avoid spraying or heavily washing seats or other interior components which may absorb water

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written on an inward facing portion of the part - if this is not possible then no stock number should be applied.

3. **Shipping**
    a. Small interior components must be boxed
    b. Larger components like bench seats, large cumbersome seats, or dash panels must be wrapped and palletized if they can't be easily carried by one person
        i. Use no fewer than two binding straps to secure the part to the pallet; use a buffer like cardboard or Styrofoam to prevent the strap from damaging upholstery/finished materials

Electronics (A/V, ECMs, Instrument Cluster, etc.)

1. **Inspect and Clean**
    a. Confirm part description, any available ID #'s as well as interchange information on work order matches the part and any special instructions have been completed
    b. Check for broken/ missing components
        i. Broken mounting tabs
        ii. Missing, broken, or worn dials / buttons
        iii. Cut wires or broken plugs
    c. Remove any plug-in wires at their connection point
    d. Wipe and dust the component avoiding heavy liquid usage
        i. Polish any interior facing lenses

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written on hidden/inward facing portion of part only

3. **Shipping**
    a. All electronic components must be boxed
    b. At least 1-2 inches worth of packing space should surround the unit inside the box
        i. To quickly assess your box size: Use your index, middle, and ring finger as a minimum width-check between the outer box wall and the mirror

Coolers, Radiators, Condensers

1. **Inspect and Clean**
    a. Confirm part description as well as interchange information on work order matches the part and any special instructions have been completed
    b. Check the seal between the aluminum core and plastic tank for damage or leakage
    c. Check for broken or missing mounting tabs and brackets
    d. Check for obvious damage to the fins or lines which would render the unit defective
    e. Remove all cut hoses running to inlets or fittings
    f. Drain the part thoroughly and plug all openings

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written on hidden portion of part

3. **Shipping**
    a. All cooling components must be boxed
        i. Use a box with dimensions similar to 22 x 6 x36
    b. At least 1-2 inches worth of packing space should surround the unit inside the box
        i. To quickly assess your box size: Use your index, middle, and ring finger as a minimum width-check between the outer box wall and the mirror

Small Mechanical - Power Steering Pump, Alternator, ABS, Compressor, etc.

1. **Inspect and Clean**
    a. Confirm part description as well as interchange information on work order matches the part and any special instructions have been completed
    b. Inspect the unit for cracks/damage to casings or housing, and any cut wiring or damaged/missing sensors, mounts, or any other external parts
    c. Use properly sized red plugs to cover any critical openings
    d. Thoroughly wash and degrease as necessary to remove dirt and debris
        i. Not applicable for Alternators

2. **Tagging and Identification**
    a. Stock number or PO number should be engraved or written on the part

3. **Shipping**
    a. All small mechanical parts must be boxed
    b. At least 2 inches worth of packing space should surround the unit inside the box
        i. To quickly assess your box size: Use your index, middle, and ring finger as a minimum width check between the outer box wall and the part