

	Yes	Partly	No
1. Piping			
a. Number of differing piping specifications minimized? (Limit range of spares and repair errors using incorrect specification.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Number of differing line sizes minimized? (Limit spare parts.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. PRV manifolds have stop valves and bleed valves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Steam and condensate lines have sufficient stop valves for sectioning heat tracing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Control valves easily accessible at grade or with platform with stop and bleed valves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Control valves and inline instruments located for inspection and accessible for repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Sufficient spacing between insulated lines avoiding "bundled" insulation? (Difficult to identify leaking line if several are bundled in one jacket.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Easily removed insulation jackets provided for service access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Unions or flanges provided to permit equipment servicing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Unions or break flanges provided for rapid piping removal if line plugging is a frequent problem?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Drains and vents for relieving pressure and clearing lines provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Traps in lines preventing free drainage avoided in the design?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Piping components (e.g., valve packing, strainers, steam traps, flanges, unions) adequately located using normal tools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Thermal stress design basis for pipe supports clearly conveyed to the Owner such that functionality for repair is retained after system is disassembled for repair and reassembled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Safe access to piping chase for troubleshooting and repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Heaters			
a. Removable header box covers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Access to convection section without scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Connections provided for tube testing, draining, and venting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Water, air, steam, gases, and electrical utilities provided at access platforms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Overhead access sufficient for coil removal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Rigging lug for burner removal provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Access provided for condition assessment (e.g., eddy current testing, flow versus pressure drop checks, ultrasonic shell thickness testing, and corrosion coupon extraction)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Insulation and piping easily removable for condition assessment or maintenance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

		Yes	Partly	No
i.	Piping arrangement and general equipment layout permits access for major repair (e.g., replacement of burner or heat exchanger; refractory repair/replacement)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	Provisions (e.g., sample ports, access, view ports) for burner cleaning and adjustment and steam and/or stack sampling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k.	Safety controls arranged for periodic testing and quick replacement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l.	Strategy in place to cover loss of function during maintenance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Pressure Vessels			
a.	Davits for manway covers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Davits on drums and towers for servicing pressure reducing valves and hoisting maintenance materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Platforms accessible with cranes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Steamout connections for vessel safing/cleaning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Platform access to blinding locations to minimize scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Figure eight blinds installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Utilities installed at manways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Platforms and ladders clear of manway openings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	Adequate industrial waste for cleaning/draining?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	Adequate air supply for ventilation of interior work ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k.	Test points easily accessed and labeled for condition assessment (e.g., shell thickness) tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l.	Relief valve testing strategy established and relief valves located for easy removal for testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m.	Adequate means for condition assessment of vessel internals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n.	For lined vessels, technique available for reliable in situ lining repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Sewers			
a.	Grating strong enough for traffic and equipment travel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Catch basins strong enough for traffic and equipment travel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Sufficient cleanout access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Trash trap?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Pumpout access for large diameter grating?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Industrial waste disposal close to equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Industrial waste disposal adequate capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Sewers can be isolated such that one section can be worked on while the others remain in service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	Drains provided for clearing piping and equipment for service/repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	Design considers overload conditions (e.g., fire protection system testing, flooding rain)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Exchangers			

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	Yes	Partly	No
a. Access space available for cranes, other equipment, tools, and extractors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Installations clear of electrical equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Monorail installed for horizontal tube bundle removal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Structural support installed for vertical tube bundle removal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Adequate space to lower and service vertical bundle?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Walkways and platforms near equipment to minimize scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Lifting lugs installed on channel head cover and head cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Tubesheet ready for pull bar installation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Gasket drawings provided by Supplier?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Figure eight blinds installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Piping connections for testing and draining installed inside blind flanges?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Piping connections installed to permit chemical cleaning of fixed tube sheet heat exchangers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Waterside backwash connections installed on cooling water tube bundles?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Rotating Equipment

a. Clear access for cart or crane for complete assembly removal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Monorail/hoist provided in confined area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Overhead access clear to equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Vent and drain connections on casing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Clear access for all required maintenance activities (including lubrication, vibration monitoring, cleaning, and seal replacement)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Couplings permit in place seal and bearing maintenance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Provisions for realignment after servicing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Horizontal jacking bolts on baseplate to ease alignment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Figure eight blinds installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Provide oil mist for lubrication of equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Provisions for (online) condition assessment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Valve operators installed away from equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Adequate provisions for regrouting equipment base?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Stress free piping connections to equipment case?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Clearance to remove rotating elements provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Permanent platforms for seal and bearing maintenance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Strategy for covering loss of equipment function during maintenance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. Process to convey initial alignment and performance data (e.g., output, motor current, vibration) to the maintenance organization?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

	Yes	Partly	No
s. Approach to spares inventory (inhouse stocking, supplier or distributor stocking) established?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Specification information (e.g., impeller diameter, seal type, and materials) easily accessed by maintenance personnel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. General			
a. Special isolation needs minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Temporary piping/hose needs minimized for shutdown work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Standard tools required for all tasks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Access to fasteners for impact and hydraulic tools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Permanent platforms for frequent maintenance areas provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Liquid removal means for low lying equipment provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Guide pins provided on equipment and components that require alignment during installation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Illumination			
a. Illumination adequate for maintenance operations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Illumination adequate for testing equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Luminescent markings used in very low illumination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Handling			
a. Lifting lugs installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Hoisting fittings identified per hoisting capacity and forklift application points?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Leveling jacks for heavy equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Covers or containers provided to protect equipment from damage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Recessed connectors and other parts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Weight labels provided on equipment over 50 lb?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Weight labels provided on three external surfaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Environment			
a. Equipment and components designed to preclude installation in the wrong position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Temperature and humidity requirements considered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Transportation considerations incorporated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Equipment designed for air transportation? Attachment/tiedown/hoisting fittings provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Equipment in shipping cases passes through shop doors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Mobility provisions considered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Can the equipment be stored for extended periods of time without degrading effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Special servicing requirements for stored equipment minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

	Yes	Partly	No
i. Servicing requirements for stored equipment defined?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Servicing resources identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Storage environments identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Environmental impacts of eventual demolition considered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. All detrimental impacts on the environment eliminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Accessibility

a. Has equipment turnaround time been minimized through:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Capability for rapid and positive fault localization?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Maximum accessibility for rapid removal and replacement of assemblies or subassemblies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Selection of assemblies or subassemblies requiring minimum time to self test (warm time included)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Rapid equipment-performance-verification capability?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Equipment and components mounted such that access priority has been assigned according to predicted removal failure rate? (Is component with the greatest anticipated removal frequency readily accessible)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Servicing points accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Access openings provided in areas where periodic maintenance is anticipated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Window or quick opening cover for visual inspection accesses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Access openings optimally located for the access required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Access doors and manways sized to permit passage of components and implements that must pass through?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Hinged doors used where physical access is required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Hinged doors provided with some means of holding them in the open position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Hinged panels open wide enough to allow access to components?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Access panels and doors held in the closed position with a minimum quantity of fasteners? No more than four fasteners should be used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Access panel door fasteners or the quick release variety? (Hand operated fasteners preferred).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Small access doors which are not hinged mounted (held with fasteners), attached with a chain, or by some other means secured to preclude loss?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Number of tools required for access held to a minimum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Standard tools required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Special tools eliminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Plug-in modules and components removable without tools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Hand access between plug-in modules and components?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

		Yes	Partly	No
r.	Non plug-in modules and components mounted with no more than four fasteners?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s.	Accesses between fastener mounted modules and components adequate to allow for proper tool use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t.	Equipment and components mounted such that removal of any single unit should not require removal of other units?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u.	If blind accesses exist, are protective features provided to preclude personnel injury?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Standardization				
a.	Standard commercial equipment items used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Same commercial equipment items used in similar applications?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Preferred standard parts used to maximum extent possible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Number of parts minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Each part has an absolute function or need?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Control panel layouts same or similar?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Panel nomenclature and color coding same for all panels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Maintainability checklists, test procedures, and technical manual formats standardized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	Difficult maintenance procedures minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	Equipment and components with like functions both electrically and mechanically interchangeable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k.	Equipment and component mounting fasteners interchangeable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Preventive Maintenance				
a.	Basic maintenance concept known?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Level of maintenance for each item defined?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Maintenance frequency (MTBM) defined or predicted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Maintenance downtime requirements specified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Maintenance facility and resources requirements specified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Maintenance personnel quantity and skill level needs specified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Test equipment needs compatible with maintenance concept?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Self test provisions incorporated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	Degree of self testing match specification requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	Self test provisions automatic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k.	Direct fault indications provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l.	Maintenance procedures and task sequences identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m.	Maintenance checklists prepared?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n.	Maintenance technical publications prepared?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

	Yes	Partly	No
o. Maintenance procedures match maintenance concept?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Anticipated maintenance tasks doable by average technician?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Anticipated maintenance tasks need fewer than two technicians?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. Servicing requirements minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. Specific servicing requirements identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Servicing resources identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u. Servicing points accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Servicing frequencies known?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Testing			
a. Equipment maximum time to repair meets time constraints?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Number of auxiliary tools and test equipment items minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Nonstandard auxiliary tools and test equipment eliminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Required tools and test equipment items standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Required tools and test equipment items simple to prepare?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Maintenance tasks completed in a minimum time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Calibration requirements known?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Standards exist for calibrating test equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Calibration tolerances known?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Calibration frequencies known?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Calibration procedures prepared?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Calibration needs possible within the existing capabilities of a standard calibration laboratory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Test point locations compatible with the maintenance concept?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Major test points located on the front panel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Test points located adjacent to controls and displays used with these test points?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Test points grouped conveniently to allow for sequential testing, testing of similar functions, or frequency of use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Each test point labeled with proper signal to be measured there?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. Each test point identified with a unique number?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. Test points located in sequentially numbered groups?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Test points color coded and easily distinguishable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u. Test points provided for direct test of all replaceable parts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Test points provided at input and output for each major unit or assembly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w. Test points recessed or otherwise protected from damage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Labeling			

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	Yes	Partly	No
a. Labeling maximized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Labeling adequate in the following areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Racks/consoles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Panel controls and meters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Test and adjustment points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Access openings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Safety areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Servicing/lubrication areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Label information adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Equipment/component labels located in plain sight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Labels attached to the equipment/component mounting plate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Mounting plate labels adjacent to applicable component?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Labels etched or embossed into applicable surface?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Access door or opening labeled to indicate accessible items ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Access label indicated what auxiliary equipment is to be used at the access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Access labeled uniquely such that each one can be clearly identified in maintenance instructions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Access labels indicate the recommended time period for performing maintenance operations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Fasteners			
a. Quick release fasteners employed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Turns required in tightening a bolt fewer than 10?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Different types of fasteners minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Quantity of fasteners minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Few large fasteners used over many small fasteners?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Same type and size of fastener used for a given application?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Bolt lengths the same?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Bolt lengths no more than required for the application?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Bolt thread sizes the same?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Bolt extends two threads beyond the nut at full tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Hexagonal socket-head bolts/screws used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Numbering of differing torque requirements minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Fasteners chosen based on need for standard tools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. External fasteners manipulated during normal maintenance have a contrasting color to their mounted surface?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design For Maintainability:**Mechanical Equipment Checklist**

	Yes	Partly	No
o. Captive fasteners used wherever loss might cause a malfunction or excessive maintenance time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Captive fasteners operated by hand or using standard tools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Captive fasteners easily replaced in case of damage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>