PRACTICE EXAM 8 SIMULATION

1. A cylinder head is typically cast or forged from aluminum alloy primarily because aluminum:

A. Resists combustion pressure better than steel

B. Dissipates heat well and is lightweight

C. Is magnetic for inspection purposes

2. A cylinder barrel bore is hardened by exposing the steel to ammonia gas at high temperature. This surface-hardening process is called:

A. Anodizing

B. Shot peening

C. Nitriding

3. A piston is most commonly machined from a forging of:

A. Aluminum alloy

B. Cast iron

C. Magnesium

4. An aluminum component must be inspected for surface cracks. The appropriate NDI method is:

A. Magnetic particle inspection

B. Magnetizing with a central conductor

C. Liquid penetrant or eddy current inspection

5. A steel crankshaft must be checked for cracks. The most suitable NDI method is:

A. Liquid penetrant only

B. Ultrasonic only, never magnetic

C. Magnetic particle inspection

6. An internal subsurface flaw deep within a part is best detected by:

A. Liquid penetrant inspection

B. Ultrasonic inspection

C. Visual inspection with a mirror

7. A part is inspected by passing radiation through it to reveal internal defects on film or a detector. This is:

A. Eddy current inspection

B. Magnetic particle inspection

C. Radiographic (X-ray) inspection

8. After magnetic particle inspection, a ferrous part must be:

A. Demagnetized

B. Anodized

C. Painted immediately

9. A chrome-plated cylinder is commonly identified by a painted band of which color around the base?

A. Blue

B. Green

C. Orange

10. The standard species of wood used as the strength reference for other aircraft woods is:

A. Birch

B. Mahogany

C. Spruce

11. Corrosion removal on an aluminum surface generally follows the sequence of clean and strip, remove corrosion, neutralize residue, then:

A. Apply heat to seal the metal

B. Restore protective films and repaint

C. Magnetize the area

12. A mechanic needs to mark a layout line on a finished aluminum aircraft part. To avoid promoting corrosion, the mechanic should mark it with:

A. A graphite lead pencil

B. A scribe pressed into the surface

C. A grease or wax pencil

13. Two dissimilar metals in contact in the presence of moisture can produce:

A. Galvanic (dissimilar-metal) corrosion

B. Improved fatigue strength

C. Nitriding of the surfaces

14. Fretting corrosion is characterized by:

A. A smooth polished surface with no debris

B. Pitting and fine debris between surfaces with slight relative motion

C. Uniform thinning across a large area

15. A self-locking nut that has lost its locking friction should be:

A. Reinstalled with extra torque

B. Replaced rather than reused

C. Lubricated to restore the lock

16. Safety wire is installed so that any loosening of the fastener:

A. Has no effect on the wire

B. Loosens the wire as well

C. Tends to tighten the fastener (wire pulls in the tightening direction)

17. A bolt's grip length should be selected so that the threads:

A. Bear the full shear load in the hole

B. Extend entirely through the nut only

C. Do not bear in the shear plane of the joint

18. The proper torque value for a fastener is found in the:

A. Aircraft registration

B. Manufacturer's maintenance data

C. Pilot's logbook

19. When a torque value is specified as "dry," applying lubricant to the threads will:

A. Produce excessive actual preload for the indicated torque

B. Have no effect on preload

C. Reduce the actual preload below specification

20. A cotter pin is used with a castellated nut to:

A. Increase the bolt's tensile strength

B. Mechanically secure the nut against rotation

C. Seal the joint against oil leaks

21. A bearing that uses smooth surfaces riding on a film of pressurized oil is a:

A. Ball bearing

B. Plain (sleeve) bearing

C. Roller bearing

22. An anti-friction bearing that can carry both radial and thrust (axial) loads is a:

A. Ball bearing

B. Plain bearing

C. Needle bearing

23. A roller bearing is best suited to carrying:

A. Thrust loads only

B. Heavy radial loads

C. No load at all

24. During cleaning, carbon deposits are removed from engine parts by a process called:

A. Decarbonizing

B. Anodizing

C. Nitriding

25. Aluminum parts should not be cleaned with strong alkaline (caustic) solutions because such solutions:

A. Harden the surface excessively

B. Have no effect on aluminum

C. Attack and corrode the aluminum

26. A magnesium part requires special care during cleaning because magnesium is:

A. Highly susceptible to corrosion and reactive with some cleaners

B. Completely inert to all chemicals

C. Magnetic and easily inspected

27. The measurement of a cylinder bore's out-of-roundness is taken:

A. Between the top and bottom of ring travel

B. Only at the very top of the barrel

C. Across two perpendicular diameters at the same height

28. A precision measurement of a small internal diameter is best made with a:

A. Telescoping gauge and micrometer

B. Steel rule

C. Feeler gauge alone

29. A feeler (thickness) gauge is used to measure:

A. Bore diameter

B. Clearance or gap between two surfaces

C. Torque on a fastener

30. A micrometer reading must be verified by:

A. Estimating against a ruler

B. Comparing to another worn micrometer

C. Checking it against a calibration standard

31. The fit between a piston pin and its bore that requires slight force to assemble is a:

A. Clearance (loose) fit

B. Running fit

C. Transition or interference fit

32. Thermal fitting (heating one part to expand it) is used to assemble parts requiring a/an:

A. Interference (shrink) fit

B. Loose clearance fit

C. Threaded fit

33. A cylinder head is shrunk onto the steel barrel by heating the aluminum head so that, on cooling, the joint is:

A. Loose and free to rotate

B. Gas-tight from the differential contraction

C. Permanently welded

34. When measuring bearing clearance using Plastigage, the clearance is determined by:

A. The torque required to crush it

B. The width to which the material is crushed

C. The color it turns when heated

35. A part that is reworked by depositing metal and re-machining to restore a worn dimension has been:

A. Heat-treated

B. Annealed

C. Plated or built up and machined

36. Heat treatment that softens a metal to relieve internal stresses and improve workability is:

A. Annealing

B. Hardening

C. Nitriding

37. Shot peening a part's surface is performed to:

A. Remove all surface coatings

B. Induce compressive stress that improves fatigue resistance

C. Increase the part's weight

38. The hardness of a metal part is commonly measured using a:

A. Rockwell or Brinell hardness tester

B. Torque wrench

C. Dial bore gauge

39. A standard hardware bolt's material and strength are commonly identified by:

A. Its length only

B. The color of its threads

C. Head markings

40. An aircraft-quality bolt differs from a commercial bolt primarily in its:

A. Lower cost

B. Larger head only

C. Controlled material, strength, and quality

41. The diameter and length of a bolt are designated by its part number system, where the grip length corresponds to the:

A. Unthreaded shank length

B. Total bolt length only

C. Thread pitch

42. A fluid line is identified as carrying fuel by a color-coded band and a symbol. Such markings exist to:

A. Improve the line's strength

B. Identify the line's contents and function

C. Increase the fluid pressure

43. A rigid fluid line that has been dented beyond limits on a pressure side should be:

A. Replaced

B. Hammered back to shape

C. Left as-is if it does not leak

44. A flexible hose's service life is affected by heat, and it should be routed to avoid:

A. Any bends whatsoever

B. Contact with smooth surfaces

C. Chafing, sharp bends, and excessive heat

45. A flared tube fitting seals by:

A. The flare being clamped between the fitting and the nut

B. A rubber O-ring only

C. Thread sealant alone

46. Over-torquing a flared fitting can:

A. Improve the seal indefinitely

B. Crack or distort the flare and cause a leak

C. Have no effect on the flare

47. A material's ability to return to its original shape after a load is removed is its:

A. Hardness

B. Brittleness

C. Elasticity

48. A material's ability to be drawn into wire is its:

A. Hardness

B. Brittleness

C. Ductility

49. Fatigue failure in a metal part typically originates at:

A. A uniformly stressed smooth surface

B. A stress concentration such as a nick or scratch

C. The center of the part only

50. The reason a nick on a propeller or turbine blade must be blended is that the nick acts as a:

A. Stress riser that can initiate a fatigue crack

B. Cooling enhancement

C. Balancing feature

51. A composite propeller or component is inspected for delamination using methods such as:

A. Tap testing or ultrasonic inspection

B. Magnetic particle inspection

C. Salt spray testing only

52. When a steel part is to be inspected by magnetic particle for cracks running lengthwise, the part is magnetized:

A. With no current at all

B. Only after painting

C. Circularly (current through the part)

53. A wet-magnetic-particle method suspends the iron particles in:

A. Dry air only

B. A liquid carrier

C. Molten metal

54. Eddy current inspection is particularly useful for inspecting:

A. Wooden structures

B. Fastener holes and turbine blades for cracks

C. Fabric coverings

55. A go/no-go gauge is used to:

A. Measure exact dimensions to the thousandth

B. Apply torque to a fastener

C. Quickly verify a dimension is within acceptable limits

56. The crosshatch finish honed into a cylinder bore serves to:

A. Reduce the bore diameter

B. Increase the compression ratio

C. Help the rings seat and retain an oil film

57. A glazed cylinder wall within wear limits is corrected by:

A. Reboring to oversize

B. Deglazing (honing)

C. Chrome plating to standard size

58. A cylinder worn beyond standard but within the maximum oversize limit is restored by:

A. Welding the bore

B. Reboring to an oversize dimension with matching piston and rings

C. Annealing the barrel

59. When a cylinder is rebored to 0.010 oversize, the piston and rings installed must be:

A. 0.010 oversize to match

B. Standard size

C. 0.010 undersize

60. A connecting rod must be checked for being bent or twisted because a distorted rod causes:

A. Improved bearing alignment

B. Misalignment and uneven wear

C. Higher compression ratio

61. Plain bearing inserts in a connecting rod are typically a soft bearing alloy bonded to a:

A. Steel backing

B. Aluminum head

C. Magnesium shell

62. A bearing surface showing flaking or pitting of the bearing material is exhibiting:

A. Spalling

B. Nitriding

C. Annealing

63. The clearance between a valve stem and its guide that is too large will cause:

A. Better valve sealing

B. Oil consumption and poor valve guidance

C. Increased compression

64. Valve seats are reconditioned by grinding to restore:

A. The valve spring tension

B. The camshaft timing

C. A proper sealing contact face

65. A valve face and seat are checked for proper contact using:

A. Prussian blue (bluing) transfer

B. A torque wrench

C. A feeler gauge only

66. Valve springs are checked during overhaul for:

A. Electrical continuity

B. Magnetic strength

C. Free length and compressed tension

67. A camshaft lobe showing wear or pitting on its surface should be:

A. Reused if it still rotates

B. Inspected against limits and replaced if out of limits

C. Heated to restore the surface

68. During reassembly, parts that were removed as a matched set should be:

A. Kept together and reinstalled in their original relationship

B. Mixed freely with other sets

C. Discarded and replaced individually

69. Engine fasteners are torqued in a specific sequence and value to:

A. Save assembly time

B. Distribute clamping load evenly and avoid distortion

C. Allow them to be removed easily

70. A new gasket is generally installed rather than reusing the old one because a used gasket:

A. May not seal reliably after being compressed

B. Is always stronger after use

C. Increases the clamping force

71. Lockwire (safety wire) on a series of fasteners is run so that:

A. Each wire run is independent and excessively long

B. The wire is left slack to allow movement

C. Tension in the wire resists loosening of each fastener

72. The purpose of a self-locking (fiber or metal) nut is to:

A. Resist loosening from vibration without a cotter pin

B. Increase the bolt's shear strength

C. Seal the joint against fluid

73. When installing a bearing with an interference fit, applying excessive force directly on the rolling elements will:

A. Damage the bearing (brinelling of the races)

B. Improve the fit

C. Have no effect

74. A surface plate and dial indicator are used together to check a part for:

A. Electrical resistance

B. Hardness

C. Flatness, runout, or warpage

75. Cadmium plating on steel hardware is applied primarily to:

A. Increase electrical resistance

B. Protect against corrosion

C. Add significant weight

76. A material's resistance to penetration or scratching is its:

A. Ductility

B. Elasticity

C. Hardness

77. A brittle material is one that:

A. Stretches greatly before breaking

B. Fractures with little deformation

C. Returns to shape after loading

78. The fit specification that allows free rotation with a film of lubricant is a:

A. Interference fit

B. Shrink fit

C. Running (clearance) fit

79. Decarbonizing a combustion chamber removes:

A. Carbon deposits from combustion

B. The cylinder's hardened surface

C. The valve seats

80. A part cleaned by vapor degreasing has had removed from it:

A. Oil and grease

B. The base metal

C. Its heat treatment

81. When measuring crankshaft journals, an out-of-round or tapered journal beyond limits requires the crankshaft to be:

A. Used as-is

B. Magnetized permanently

C. Reground to an undersize or replaced

82. Crankshaft journals reground undersize require bearings that are:

A. Correspondingly undersize to maintain proper clearance

B. Standard size

C. Oversize

83. A torque wrench should be calibrated periodically because an out-of-calibration wrench can produce:

A. Perfectly accurate torque always

B. Faster assembly

C. Improper preload, risking failure or looseness

84. When a bolt and nut are tightened, the clamping force produced in the joint is the:

A. Shear strength

B. Preload (tension)

C. Hardness

85. A dial bore gauge is used to measure:

A. Cylinder bore diameter and taper precisely

B. Fastener torque

C. Valve spring tension

86. A part subjected to repeated cyclic loading below its ultimate strength may eventually fail by:

A. Fatigue

B. Annealing

C. Nitriding

87. The purpose of restoring protective surface films after corrosion removal is to:

A. Increase the part's hardness

B. Prevent recurrence of corrosion

C. Improve electrical conductivity

88. A bolt installed in a shear application should have its threads positioned so that the:

A. Threads carry the full shear load

B. Threads protrude past the nut for safety wire only

C. Unthreaded shank (grip) spans the shear plane

89. A hose assembly carrying high-pressure hydraulic fluid must be:

A. Routed with the tightest possible bends

B. Properly supported and protected from chafing

C. Left unsupported to allow flexing

90. Identification markings on fluid lines combine a color code with a:

A. Serial number only

B. Geometric symbol indicating the system

C. Manufacturer's logo only

91. A part that has been overheated in service may have lost its:

A. Color only

B. Serial number

C. Heat-treated strength properties

92. When two surfaces must seal without a gasket, a precise flat mating finish is achieved by:

A. Welding the surfaces

B. Painting both faces

C. Lapping the surfaces together

93. Lapping compound used to seat a valve must be:

A. Completely removed after the operation

B. Left in place for lubrication

C. Replaced with sealant

94. A measurement tool reading in increments of 0.001 inch with a thimble and barrel scale is a:

A. Steel rule

B. Micrometer

C. Feeler gauge

95. When a fastener calls for a specific torque and the manufacturer specifies adding a run-on (prevailing) torque for a self-locking nut, the run-on torque is:

A. Added to the specified seating torque

B. Subtracted entirely

C. Ignored

96. A cylinder hold-down nut sequence is tightened in steps (incremental passes) to:

A. Speed the job

B. Loosen the studs evenly

C. Seat the cylinder evenly without distortion

97. Galvanic corrosion between aluminum and steel is reduced by:

A. Increasing the moisture present

B. Insulating or finishing the dissimilar metals to separate them

C. Grounding them together electrically

98. A surface inspected for cracks with fluorescent penetrant is examined under:

A. Bright white light only

B. Ultraviolet (black) light

C. Infrared light only

99. A part that fails by exceeding its ultimate tensile strength in a single overload event shows:

A. A ductile or brittle overload fracture, not a fatigue progression

B. The classic beach marks of fatigue

C. No visible failure surface

100. The primary reason aircraft hardware and materials are controlled and traceable is to:

A. Ensure known strength and quality for airworthiness

B. Increase the parts' resale value

C. Simplify the part-numbering system only

Answer Key & Full Answer Explanations

1. B — Dissipates heat well and is lightweight. Aluminum alloy is chosen for cylinder heads because it conducts and sheds heat efficiently and is light; it does not resist pressure better than steel, and it is nonmagnetic.

2. C — Nitriding. Nitriding exposes the steel bore to ammonia gas at high temperature, letting nitrogen form a hard, wear-resistant surface without the distortion of other hardening methods.

3. A — Aluminum alloy. Pistons are most commonly machined from aluminum alloy forgings for light weight and good heat conduction.

4. C — Liquid penetrant or eddy current inspection. Aluminum is nonmagnetic, so magnetic particle cannot be used; penetrant finds surface cracks and eddy current finds surface and near-surface cracks in conductive metals.

5. C — Magnetic particle inspection. A steel crankshaft is ferromagnetic, so magnetic particle inspection is well suited to detecting its surface and near-surface cracks.

6. B — Ultrasonic inspection. Ultrasonic inspection uses high-frequency sound waves to detect internal subsurface flaws deep within a part, which surface methods cannot reach.

7. C — Radiographic (X-ray) inspection. Radiographic inspection passes radiation through the part to reveal internal defects on film or a detector, and can inspect assembled components.

8. A — Demagnetized. After magnetic particle inspection a ferrous part must be demagnetized so residual magnetism does not attract debris or affect operation.

9. C — Orange. Chrome-plated cylinders are commonly identified by an orange painted band around the base or fins.

10. C — Spruce. Spruce is the standard reference species against which the strength properties of other aircraft woods are compared.

11. B — Restore protective films and repaint. After cleaning, stripping, removing corrosion, and neutralizing residue, the final step is restoring protective surface films and repainting to prevent recurrence.

12. C — A grease or wax pencil. Graphite from a lead pencil can promote corrosion on aluminum, and a scribe creates a stress riser by cutting the surface, so neither is appropriate on a finished part. A grease or wax pencil marks the layout line without damaging the surface or inducing corrosion.

13. A — Galvanic (dissimilar-metal) corrosion. Two dissimilar metals in contact with moisture form a galvanic cell, causing dissimilar-metal corrosion.

14. B — Pitting and fine debris between surfaces with slight relative motion. Fretting corrosion occurs between surfaces in slight relative motion, characterized by pitting and the generation of fine debris.

15. B — Replaced rather than reused. A self-locking nut that has lost its locking friction can no longer resist vibration and must be replaced, not reused.

16. C — Tends to tighten the fastener (wire pulls in the tightening direction). Safety wire is installed so that any tendency of the fastener to loosen places the wire in tension in the tightening direction.

17. C — Do not bear in the shear plane of the joint. A bolt's grip is selected so the unthreaded shank, not the threads, spans the shear plane, since threads are not designed to carry shear.

18. B — Manufacturer's maintenance data. Proper torque values come from the manufacturer's maintenance data, not the registration or logbook.

19. A — Produce excessive actual preload for the indicated torque. Lubricating threads specified as dry reduces friction, so the indicated torque produces excessive actual preload, risking overstress.

20. B — Mechanically secure the nut against rotation. A cotter pin through a castellated nut and drilled bolt mechanically prevents the nut from rotating loose.

21. B — Plain (sleeve) bearing. A plain bearing presents smooth surfaces that ride on a film of pressurized oil, used for main and rod journals.

22. A — Ball bearing. A ball bearing can carry both radial and thrust loads, unlike a roller bearing, which is mainly radial.

23. B — Heavy radial loads. Roller bearings are well suited to carrying heavy radial loads.

24. A — Decarbonizing. Decarbonizing removes carbon deposits from engine parts during cleaning.

25. C — Attack and corrode the aluminum. Strong alkaline (caustic) solutions chemically attack and corrode aluminum, so they must not be used on aluminum parts.

26. A — Highly susceptible to corrosion and reactive with some cleaners. Magnesium is very susceptible to corrosion and reacts with some cleaners, requiring special care.

27. C — Across two perpendicular diameters at the same height. Out-of-roundness is measured across two perpendicular diameters at the same height, while taper is measured between the top and bottom of ring travel.

28. A — Telescoping gauge and micrometer. A small internal diameter is measured with a telescoping gauge transferred to a micrometer for a precise reading.

29. B — Clearance or gap between two surfaces. A feeler (thickness) gauge measures the clearance or gap between two surfaces.

30. C — Checking it against a calibration standard. A micrometer's accuracy is verified by checking it against a known calibration standard (such as a gauge block).

31. C — Transition or interference fit. A pin requiring slight force to assemble is a transition or light interference fit, not a free clearance fit.

32. A — Interference (shrink) fit. Heating one part to expand it for assembly is used for interference (shrink) fits, which become tight on cooling.

33. B — Gas-tight from the differential contraction. The aluminum head, threaded on while hot, contracts on cooling onto the steel barrel to form a gas-tight joint.

34. B — The width to which the material is crushed. Plastigage indicates bearing clearance by the width to which the soft material is crushed between the surfaces.

35. C — Plated or built up and machined. A worn dimension can be restored by depositing metal (plating or build-up) and re-machining to size.

36. A — Annealing. Annealing softens a metal, relieving internal stresses and improving workability.

37. B — Induce compressive stress that improves fatigue resistance. Shot peening bombards the surface to induce compressive residual stress, which improves fatigue resistance.

38. A — Rockwell or Brinell hardness tester. Material hardness is measured with a Rockwell or Brinell hardness tester.

39. C — Head markings. A bolt's material and strength are commonly identified by markings on the head.

40. C — Controlled material, strength, and quality. Aircraft-quality bolts are distinguished by controlled material, strength, and quality, not lower cost or larger heads.

41. A — Unthreaded shank length. In the bolt part-number system, the grip length corresponds to the unthreaded shank length.

42. B — Identify the line's contents and function. Fluid-line color codes and symbols identify the line's contents and the system it serves.

43. A — Replaced. A rigid pressure-side line dented beyond limits must be replaced, not hammered back into shape.

44. C — Chafing, sharp bends, and excessive heat. A flexible hose should be routed to avoid chafing, sharp bends, and excessive heat, all of which shorten its life.

45. A — The flare being clamped between the fitting and the nut. A flared tube fitting seals by clamping the flared tube end between the fitting cone and the nut.

46. B — Crack or distort the flare and cause a leak. Over-torquing a flared fitting can crack or distort the flare, causing a leak.

47. C — Elasticity. Elasticity is a material's ability to return to its original shape after a load is removed.

48. C — Ductility. Ductility is a material's ability to be drawn into wire (deformed plastically without fracture).

49. B — A stress concentration such as a nick or scratch. Fatigue cracks typically originate at a stress concentration such as a nick, scratch, or other surface defect.

50. A — Stress riser that can initiate a fatigue crack. A nick acts as a stress riser that concentrates stress and can initiate a fatigue crack, so it must be blended out.

51. A — Tap testing or ultrasonic inspection. Composite components are inspected for delamination by tap testing or ultrasonic inspection.

52. C — Circularly (current through the part). To detect lengthwise cracks, the part is magnetized circularly by passing current through it, creating a field that reveals longitudinal flaws.

53. B — A liquid carrier. The wet magnetic-particle method suspends the iron particles in a liquid carrier for better mobility and sensitivity.

54. B — Fastener holes and turbine blades for cracks. Eddy current inspection is widely used to detect cracks in fastener holes and turbine blades.

55. C — Quickly verify a dimension is within acceptable limits. A go/no-go gauge quickly verifies whether a dimension falls within acceptable limits rather than giving an exact measurement.

56. C — Help the rings seat and retain an oil film. The honed crosshatch finish helps the piston rings seat and retains a film of oil on the cylinder wall.

57. B — Deglazing (honing). A glazed cylinder wall within wear limits is corrected by deglazing (honing) to restore the crosshatch, not by reboring or plating.

58. B — Reboring to an oversize dimension with matching piston and rings. A cylinder worn beyond standard but within the oversize limit is rebored to an oversize dimension with a matching oversize piston and rings.

59. A — 0.010 oversize to match. When a cylinder is rebored 0.010 oversize, the piston and rings installed must be 0.010 oversize to maintain proper clearance.

60. B — Misalignment and uneven wear. A bent or twisted connecting rod causes misalignment and uneven wear, so rods are checked for distortion.

61. A — Steel backing. Plain bearing inserts use a soft bearing alloy bonded to a steel backing for support.

62. A — Spalling. Flaking or pitting of the bearing material is spalling, a sign of bearing deterioration.

63. B — Oil consumption and poor valve guidance. Excessive valve stem-to-guide clearance allows oil into the combustion area and provides poor valve guidance.

64. C — A proper sealing contact face. Valve seats are ground to restore a proper sealing contact face with the valve.

65. A — Prussian blue (bluing) transfer. Valve face-to-seat contact is checked with Prussian blue, which transfers to show the contact pattern.

66. C — Free length and compressed tension. Valve springs are checked for proper free length and for tension when compressed.

67. B — Inspected against limits and replaced if out of limits. A worn or pitted camshaft lobe is measured against limits and replaced if it exceeds them.

68. A — Kept together and reinstalled in their original relationship. Matched sets removed during disassembly are kept together and reinstalled in their original relationship to preserve fit.

69. B — Distribute clamping load evenly and avoid distortion. Torquing fasteners in sequence and value distributes the clamping load evenly and avoids distorting the assembly.

70. A — May not seal reliably after being compressed. A used gasket, already compressed, may not seal reliably, so a new gasket is generally installed.

71. C — Tension in the wire resists loosening of each fastener. Lockwire is run so that tension in the wire opposes the loosening direction of each fastener.

72. A — Resist loosening from vibration without a cotter pin. A self-locking nut uses fiber or deformed metal to resist loosening from vibration without needing a cotter pin.

73. A — Damage the bearing (brinelling of the races). Forcing a bearing by pressing on the rolling elements brinells (dents) the races, damaging the bearing; force must be applied to the press-fit race.

74. C — Flatness, runout, or warpage. A surface plate and dial indicator together check a part for flatness, runout, or warpage.

75. B — Protect against corrosion. Cadmium plating on steel hardware provides corrosion protection.

76. C — Hardness. Hardness is a material's resistance to penetration or scratching.

77. B — Fractures with little deformation. A brittle material fractures with little plastic deformation, unlike a ductile material.

78. C — Running (clearance) fit. A running fit provides a clearance that allows free rotation with a film of lubricant.

79. A — Carbon deposits from combustion. Decarbonizing a combustion chamber removes the carbon deposits left by combustion.

80. A — Oil and grease. Vapor degreasing removes oil and grease from a part without harming the base metal or its heat treatment.

81. C — Reground to an undersize or replaced. A crankshaft journal out-of-round or tapered beyond limits must be reground undersize or the crankshaft replaced.

82. A — Correspondingly undersize to maintain proper clearance. Journals reground undersize require correspondingly undersize bearings to maintain proper clearance.

83. C — Improper preload, risking failure or looseness. An out-of-calibration torque wrench produces improper preload, risking fastener failure or looseness, so periodic calibration is required.

84. B — Preload (tension). Tightening a bolt and nut produces clamping force as preload (tension) in the fastener.

85. A — Cylinder bore diameter and taper precisely. A dial bore gauge precisely measures cylinder bore diameter and taper.

86. A — Fatigue. Repeated cyclic loading below ultimate strength can eventually cause fatigue failure.

87. B — Prevent recurrence of corrosion. Restoring protective surface films after corrosion removal prevents the corrosion from recurring.

88. C — Unthreaded shank (grip) spans the shear plane. In a shear application the bolt's unthreaded shank should span the shear plane, since threads are not designed to carry shear.

89. B — Properly supported and protected from chafing. A high-pressure hydraulic hose must be properly supported and protected from chafing to prevent failure.

90. B — Geometric symbol indicating the system. Fluid-line identification combines a color code with a geometric symbol indicating the system.

91. C — Heat-treated strength properties. A part overheated in service may lose its heat-treated strength properties, weakening it.

92. C — Lapping the surfaces together. A precise flat mating finish for a gasketless seal is achieved by lapping the surfaces together.

93. A — Completely removed after the operation. Valve lapping compound is abrasive and must be completely removed after the operation to prevent continued wear.

94. B — Micrometer. A micrometer reads in 0.001-inch increments using its thimble and barrel scales.

95. A — Added to the specified seating torque. The prevailing (run-on) torque of a self-locking nut is added to the specified seating torque to obtain the final value.

96. C — Seat the cylinder evenly without distortion. Cylinder hold-down nuts are tightened in incremental passes to seat the cylinder evenly and avoid distortion.

97. B — Insulating or finishing the dissimilar metals to separate them. Galvanic corrosion between aluminum and steel is reduced by insulating or finishing the metals to separate them and exclude moisture.

98. B — Ultraviolet (black) light. Fluorescent penetrant indications are examined under ultraviolet (black) light, which makes the dye glow.

99. A — A ductile or brittle overload fracture, not a fatigue progression. A single-overload failure shows a ductile or brittle overload fracture, lacking the progressive beach marks of fatigue.

100. A — Ensure known strength and quality for airworthiness. Aircraft hardware and materials are controlled and traceable to ensure known strength and quality, which is essential for airworthiness.