



# **B-29 MECHANIC'S**

**FIELD SERVICE DATA BOOK**  
**RESTRICTED**

*Boeing*<sup>\*</sup>

**SUPERFORTRESS SCHOOL**  
**SEATTLE • WASHINGTON**

G TIMBLIN 1943

#### FOREWORD

This booklet has been prepared for the use of graduates of this school. No material has been included that is classified either as secret or confidential. It is requested that the men be permitted to retain this booklet in their possession at all times and that they be permitted to carry it into any theater, unless orders in force in a particular theater of operations specifically prohibit the men from carrying materials of this nature.

It in no way goes into the work in its entirety, but rather is a refresher as to the settings, pressures, adjustments, specifications, etc.

The information herein is correct in detail at the time of compilation, but realizing the various deviations that will be made from time to time, the Technical Orders should be consulted regularly.

We suggest that as changes are made, you keep your booklet up to date. We are hopeful that this condensation of information will be both helpful and practical.

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## I. SPECIFICATIONS (AIRPLANE AND ENGINE)

1. Airplane—General
  - Designer's Model No. .... Boeing 345
  - U. S. Army Type Designation,
    - XB-29, YB-29, B-29, B-29A, B-29B, F-13, F-13A
    - (X—Experimental, Y—Service Test, B—Production)
    - (B-29A—Wing Break at Sta. 47.75) (B-29B—Stripped)
    - F-13 and F-13A—Photographic
  - Number of Engines .....
  - Overall Span .....
  - Overall Length .....
  - Overall Height (at rest).....
  - Overall Height (thrust line level).....
  - Height C.L. Prop. Hub .....
  - (Taxi position) .....
2. Wing
  - Airfoil Section Designation .....
  - Total Area .....
  - Total Weight .....
  - Root Chord .....
  - Tip Chord .....
  - M.A.C. (Mean Aerodynamic Chord).....
  - Angle of Incidence .....
  - Dihedral .....
  - Sweepback .....
3. Ailerons (Statically Balanced) Each
  - Total Area (incl. tab.).....
  - Area Aft of Hinge C.L. ....
  - Area of Balance .....
  - Length .....
  - Chord (Constant) .....
  - Movement .....
  - Cable Controlled .....

4. Aileron Trim Tabs (each) 44-61856 & on  
 Area ----- 6.0 Sq. Ft.  
 Length ----- 8', 11.5"  
 Chord ----- 8"  
 Movement ----- Up  $8^\circ \pm 2^\circ$  - 1.13"  
 ----- Down  $8^\circ 40' \pm 2^\circ$  - 1.21"  
 Irreversible Cable Controls

5. Flaps (extendable airfoil type)  
 Total Area (both) ----- 332 Sq. Ft.  
 Length (each) ----- 37', 8.5"  
 Chord ----- 4', 11" Inbd.; 4', 2" Outbd.  
 Movement -----  $45^\circ$  tolerance  $2^\circ$   
 Electrically operated

6. Nacelles and Cowling  
 Oval shape to accommodate air intake at nose of  
 cowl for eng. supercharger equipment.  
 Cowl rings equipped with electrically operated  
 cooling flaps.  
 Total Weight (four) ----- 4542 lbs.

7. Fuselage  
 Length ----- 99'  
 Maximum Diameter ----- 9', 6"  
 Weight ----- 7363 lbs.

Compartments:

Forward pressurized control cabin	Sta's 0 to 218
Bomb bays and wing center section	
	Sta's 218 to 646
Aft Pressurized Cabin	646 to 834
Waist Compartment	834 to 1110
Tail Gunner's Compartment	Sta's 1110 to 1144

8. Horizontal Tail Surfaces  
 Total Area ----- 333 Sq. Ft.  
 Span ----- 43 Ft.  
 Maximum Chord ----- 11', 2.4"  
 Weight ----- 815 lbs.

Stabilizer:

Area	218 Sq. Ft.
Normal Setting	
	$0^\circ$ Deg. relative to the longitudinal axis.
Movement	None-Fixed Type

Elevators (Statically Balanced)

Total Area	115 Sq. Ft.
Movement	Up $25^\circ$ or $15.51^\circ$ ; Down $15^\circ$ or $9.36^\circ$
Cable Controlled	

Elevator Trim Tabs

Area (each)	5 Sq. Ft.
Movement	Up $12^\circ \pm 2^\circ$ - 2.55" Down $12^\circ \pm 2^\circ$ - 2.55"

Irreversible Cable Controls

9. Vertical Tail Surfaces

Area	238 Sq. Ft.
Fin Area	141.8 Sq. Ft.
Plus 40.6 sq. ft. dorsal	
Total	182.4 sq. ft.

Normal Setting	$0^\circ$ Degree
Movement	None-Fixed Type

Rudder (Statically Balanced)

Area	65.5 Sq. Ft.
Movement	Right $18^\circ$ or $16.59^\circ$ Left $18^\circ$ or $16.59^\circ$
Cable Controlled	

Rudder Trim Tab

Area	4.8 Sq. Ft.
Movement	$5^\circ$ or $1.14^\circ$ (each way)
Irreversible Cable Controls	

10. Engines	
Model	R3350-23-23A
Type	18 Cyl., Staggered two row static radial, air cooled
Bore	6.125 inches
Stroke	6.312 inches
Displacement	3346.43 Cu. In.
Compression ratio	6.85:1
Impeller Gear Ratio	6.06:1
Take Off B.H.P. and R.P.M. at Sea Level	
	2200 at 2800 (5 minutes only)
Normal Rated B.H.P. and R.P.M. at Altitude	
	2000 at 2400 (25,000 Ft.)
Maximum permissible engine overspeed	3150 R.P.M.
Rotation of Propeller	Clockwise
(From anti-propeller end)	
Propeller Reduction Gear Ratio	0.35
Magneto Type	Scintilla DF-18LN-1
Rotation of Magneto Drive Shaft	
(Facing Mounting Pad)	Clockwise
Magneto Drive Shaft Speed Ratio to Crankshaft	1.125:1
Spark Plug Type	(1) RC-35S, LS-88, (2) C-35S*
Spark Plug Gap	.012 Inches
	(.011" Min.; .014" Max.)
Spark Timing on No. 1 Cylinder	
Front Spark Plugs, Deg. B.T.C.	20
Rear Spark Plugs, Deg. B.T.C.	20
Valves and Timing:	
Intake Opens, Deg. B.T.C.	15
Intake Closes, Deg. A.B.C.	44
Exhaust Opens, Deg. B.B.C.	74
Exhaust Closes, Deg. A.T.C.	25
Intake Remains Open, Crankshaft Deg. 239	
Exhaust Remains Open, Crankshaft Deg. 279	

\*Numerals Indicate Preference.

Valve Lift .....5625 Inches  
 Valve Rocker Clearances:  
 Timing Clearance.....Intake .070"; Exhaust .125"  
 Desired Clearance (cold).....Intake & Exhaust .005 inches  
 CAUTION: Always check data plate on engine before  
 setting valve clearances.

**TIGHTENING TORQUE VALUES**  
 STANDARD STUDS, BOLTS, SCREWS, AND CAP SCREWS

NAME	Size of Thread Nut End	TORQUE VALUES			
		Driving Stud		Tightening Nut, Screw or Cap Screw	
		Min. In.-Lb.	Max. In.-Lb.	Min. In.-Lb.	Max. In.-Lb.
Button-Head Screw.....	10-32	..	..	20	25
Button-Head Screw.....	12-24	..	..	25	30
Studs, Bolts, Screws and Cap Screws.....	10-32	..	..	35	40
"	12-24	..	..	45	50
"	1/4-28	50	70	80	85
"	5/16-24	100	150	160	175
"	3/8-24	200	275	225	250
"	1/2-20	300	425	350	375
"	1/2-20	500	700	550	600
"	9/16-18	750	975	825	875
"	5/8-18	1100	1400	1125	1200
Cylinder Hold-Down				(First Torque)	
Cap Screw.....	7/16-20	..	..	300	300
				(Final Torque)	
				375	400
Rocker Hub Bolt.....	9/16-18	..	..	300	375
Spark Plug.....	18 mm.	..	..	300	360
Rocker Arm Lock Screw.	..	..	..	135	150



## II. SPECIFIC ENGINE OPERATING INSTRUCTIONS

Condition	Fuel Pressure Lb./In. <sup>2</sup>	Rear Oil Pressure Lb./In. <sup>2</sup>	Nose Oil Pressure Lb./In. <sup>2</sup>	Oil Temperature °Centigrade	Cylinder Head Temp.
Desired	17	65-70	50-55	70	
Maximum	18	80	55	85*	260°C
Minimum	16	60	30	50	
Idling	..	20	20	..	

†OPERATING CONDITION	Horse Power	R.P.M.	Manifold Pressure (In. Hg.)	Pressure Altitude (In Feet)
Take-off	2200	2800	49	S. L.
Military Rated Power	2200	2800	49	25,000

\*Ground Operation, Take-off Power and Military Power only.

†See T.O. 01-20EJ-79.

### GROUND OPERATION:

Generator Check at 1500 R.P.M.

Propeller Gov. Check at 1500 R.P.M.—Full Decrease to 1200—1300 R.P.M.—Full Increase to 1500 R.P.M.

Magneto Check at 2200 R.P.M. (not to exceed 30" Hg. M.P.) Drop not to exceed 100 R.P.M. Full Throttle, T.B.S. at "8"—approx. 2800 R.P.M. at 48 to 49" Hg. M.P. (2 sec. max.)

Cowl Flaps & Intercooler Flaps "Open."

Oil Cooler Flap on "Auto" Position.

Mixture Control in "Auto Rich."

Magneto "Off" Check—700 R.P.M.

Shut Down—1200 R.P.M.—190° Cyl. Head Temp., if possible.

MAXIMUM PERMISSIBLE ENGINE OVER SPEED ..

-----3150 R.P.M.

MAXIMUM ALLOWABLE OIL CONSUMPTION AT:

Normal Rated Power-----27 qts/hr.

Maximum Cruising-----12 qts/hr.

Minimum Specific Fuel Flow-----8 qts/hr.

Desired Carburetor Air Inlet Temp.-----15° to 30°C.

Fuel Grade-----100/130 Spec. AN-F-28

Engine-----R-3350-13, -21, -23, -23A

-57, -59

Mixture Control Position	Fuel Flow Gallon-Hr.	Max. Cyl. Head Temp. °Centigrade	Remarks
Auto. Rich	290	260	5 Minute Duration
Auto. Rich	290	260	5 Minute Duration

### III. ENGINE REMOVAL

#### 1. Slush Engine

Change to unleaded fuel.

Drain oil tanks. Refill with corrosion preventive oil.  
(Approx. 30 gallons).

(Three parts lubricating oil to one part AN-VV-C-576 or commercial designation 606.)

Bleed oil lines, prime pressure oil pumps.

Run engine 30 minutes at 1,000 R.P.M. maximum, propeller in low pitch. Spray slushing oil under 50 P.S.I. (175°F to 225°F) into induction system through base on front side of carburetor adapter.

When exhaust smokes heavily, stop engine by placing mixture control in "idle cut off" and immediately turning ignition switch off.

**CAUTION:** Remove spark plugs and rocker box covers as soon as possible after slushing to prevent the accumulation of moisture.

#### 2. Cowl Removal

Detach five removable panels.

Open cowl flaps.

Release two top flaps at Station 0.

Detach cowl duct.

Remove bolts holding flap-jacks to flaps.

**CAUTION:** Don't lose bushings.

Safety wire top three flapjacks and bottom two on each side to avoid loss of adjustment.

Disconnect engine breather hose.

Disconnect bonding straps—four from each bank of cylinders to cowl.

Disconnect blower drain line.

Remove inner cowl at Station 0.

Remove "A" braces between engine mount and cowl.

**CAUTION:** Support cowl nose lest "A" brace removal place excessive stress on cowl longitudinals.

Disconnect six cowl longitudinals from Engine Mount at Station 0.

Remove nose cowl (weight approximately 346 lbs.).

#### 3. Actual Engine Removal.

(Cowl off) Remove sealing cowl behind Station —40. Remove exhaust stack shrouding at Station 0, and disconnect stacks.

Remove exhaust balance line.

(Affords access to 2 lower engine mount bolts at Station 0).

Disconnect cowl flap drive between 3rd and 4th flapjack on both sides and the power drive to the "H" drive on both sides.

Disconnect three top flapjack guides at Station 0 on both sides.

Disconnect all engine accessories and propeller controls from nacelle connections, mechanical linkages, etc.

Attach engine hoist sling.

**CAUTION:** 3,600 lbs. approximate weight of engine, accessories and mount complete. Check hoisting equipment carefully.

Remove six nuts holding engine mount to Station 0. (Start at bottom) torque 800-1000 inch lb.

Remove engine (Accessories and engine mount included).

#### 4. Stripping the Engine.

Place engine on suitable stand.

Remove accessories.

**NOTE:** Carburetor and fuel pump must be off to remove engine mount, also slush all accessory drives immediately and cover with moisture resisting seals.

Remove exhaust collector ring.

Remove lord mount "eye" bolt nuts.

**CAUTION:** On installation.

Torque 800-850 inch lbs. Use spacer to keep "eye" bolts from twisting against the lord mount "ears."  
Remove engine mount.



Attached will be:

- CO<sub>2</sub> Discharge line.
- Six cowl flap jacks.
- Exhaust shrouding.

Remove lord mounts from engine.

Installation note:

40 ft. lbs. torque including allowance for loss occasioned by angular attack and consequent use of universal socket wrench.

Remove short stacks from cylinder heads.

NOTE: Slush exhaust valves and install moisture resisting seals.

CAUTION: Part No. 11077 on front bank, 11101 on rear bank and short side to cylinder head.

#### IV. CARBURETOR

Type—Ceco 58CPB4

Bosch fuel injection system 58-18-A1B

Bendix fuel injection system 58-18-A1A

(1) With head temp. at 200°C to 205°C and oil temp. at 60°C to 70°C, accelerate to 2200 R.P.M. and check magnetos. (2) Reduce R.P.M. to 400 to 450 and lock throttles, mixture control at Auto-Rich. If R.P.M. increases after change in mixture during succeeding steps, readjust throttle. (3) Move mixture control to idle cut-off and watch R.P.M. An increase over 10 R.P.M. while "leaning out" indicates mixture too rich. An immediate decrease indicates mixture too lean. (4) Catch engine before it "dies" by moving mixture control to Auto-Rich and opening throttle slightly. (5) If found to be too rich or lean, turn the adjustment as necessary for correction and recheck. Make further adjustments until a check results in a momentary "pick-up" of not more than 10 R.P.M. In the event the engine "loads up," run up to ground test R.P.M. to prevent "fouling."

#### V. ACCESSORIES

Accessory	Type	Dwg. or Spec.	Engine	Rotation of Engine Accessory Drive	Speed Ratio to Engine
Magneto	DF18LN-1		1 on each	Clockwise	1.125 to 1
Starter	G-10 or G-20	JH5E or JH4E	1 on each	Clockwise	1 to 1
Generator	R-1		2 Outb'ds 1 Inb'ds	Clockwise	2.8 to 1
Fuel Pump	G-9 or G-10	Spec. AN-XX-P-291	1 on each	Counter Clockwise	1 to 1
Vacuum Pump	B-8 or B-8A	Dwg. 211-J	1 on each	Counter Clockwise	1.4 to 1
Electric Tachometer	E-14	Spec. 94-27972	1 on each	Counter Clockwise	0.5 to 1
Prop Governor		See T.O. 01-20E1-79 for proper types	1 on each	Clockwise	1 to 1

## VI. PROPELLER

Diameter ..... 16', 7"  
Type—Hamilton Standard, Constant Speed and fast feathering—Dwg. 2041H3

Hub ..... 24F60

Blades (Four per Assy.) 6497A-6 or 6521A-6

Electric Governor Head Control—AN-3019.

Limit switch adjustments (as viewed from rear of engine).

Right side—low pitch, high R.P.M. screw.

Left side—high pitch, low R.P.M. screw.

Turn clockwise to increase R.P.M. on either side.

Propeller shaft run out—Max. .012" forward of splines.

Propeller Gear Preload:

Desired Preload ..... .018"

Tolerance—plus .003" or minus .003"

Blades out of track—3/16" maximum.

Prop thrust nut torque 1500 ft. lbs.

Dome retaining nut 720 ft. lbs.

Piston gasket retaining nut—200 ft. lbs.

Distributor Valve—100 ft. lbs.

Barrel Halves Bolts—100 ft. lbs.

Governor Inlet and Outlet Plugs must be in "B" hole.

Causes of Prop Vibration:

Blade angles not synchronized.

Blades out of track.

Insufficient gear pre-load.

Loose prop retaining nut.

Excessive propeller shaft run out.

Insufficient blade torque.

Loose fitting barrel support blocks.

Arrows on dome and barrel shelf not aligned.

Propeller assembly out of balance, nicks, loose parts, etc.

Causes of Sluggish Blade Action:

Sludge in dome.

Excessive gear pre-load.

Low governor oil pressure.

Internal oil leaks:

Distributor to propeller shaft.

Distributor valve rings.

Piston gasket.

Prop shaft transfer rings in nose section.

## VII. TURBOSUPERCHARGER

Type—General Electric B-11 or B-31.

Regulator—Minneapolis-Honeywell Automatic, Electronic.

Maximum R.P.M.—26,400.

Critical Altitude—35,600.

Nozzle box to bucket wheel clearance:

Desired ..... .095" to .120"

Minimum ..... .070"

Maximum ..... .160"

Shaft End Play: Maximum—".009"

Radial Shake: Maximum—".003"

Cooling Cap to Bucket Wheel:

Minimum ..... .110" Desired ..... .130"

Maximum ..... .160"

Waste Gate stop to Waste Gate—Desired 3/32"

Turbo settings: Air Corps, Setting

No. 1 is L. H.

No. 2 is R. H.

Governor drive shaft lubricated with AN-G-3.

Numbers on all wires from "J," boxes prefixed with PC.

CAUTION: No adjustments are made on any unit "ON THE LINE" except the wastegate.



Simple jumper method which may be used in conjunction with a voltohmmeter in shooting trouble on M-H. turbo regulator.

Main "J" Box. 1st Step Jump from Terminal	TBS SETTING	
A1 to A3 for Nacelle No. 1	7+	Depends on Calibrator Setting.
A2 to A4 for Nacelle No. 2	7+	
C1 to C3 for Nacelle No. 3	7+	
C2 to C4 for Nacelle No. 4	7+	

The Waste Gate should open and close at 7+. This checks the amplifier, TBS, waste gate motor and connecting wires. If gates open and close fully at 7+ proceed to step 2. If they do not, remove from the main "J" Box terminals, the wires which go to B8 and B6 in the nacelle "J" Box. Recheck jump No. 1. If trouble still exists take following steps:

- Check fuses and power to amplifier.
- Check amplifier in a good system.
- Check continuity of lines—Main "J" Box to amplifier.
- Check continuity of lines—T.B.S. to Main "J" Box.
- Check motor power lines by removing all tubes except one 7C5. Replace signal lines.

Nacelle "J" Box 2nd Step	(a) Make any necessary checks for grounds.			
	(b) Remove balance pot wiper line from B8.			
	(c) Remove line No. 16 from B4			
	To Check:	T.B.S.	at	
2. Jump B8 to B6	Signal lines	7+		This 5+ will change to a lower posi- tion at high- er altitude.
3. Jump B8 to B7	Pressure/retrol	5+		
4. Jump B8 to B4	Accelerometer	5+		
5. Jump B8 to B3	Overspeed	5+		
6. Jump B8 to A2	6 volt open secondary	7+		
7. Replace wires, and operate	Balance Pot		Hunts around 7½	

In an emergency, the gates may be opened by removing the amplifier (7F7) tube and the close (7C5) tube. (Behind the amplifier tube).

Service Supercharger Oil System:

Use oil Spec. 3606.

When to service \_\_\_\_\_ Pre-flight.

Capacity—2.5 gallons to level of filler neck.

Change—Only when oil becomes dirty or supercharger fails.

Pre-flight Inspection of Turbos:

Freedom of movement of bucket wheel.

Flight hood mounting to nozzle box.

Freedom of movement of waste gate.

Visual inspection of oil supply and oil lines.

Turn Puralator Filter in oil return line.

Nozzle box to bucket wheel clearance.

Cooling cap to bucket wheel clearance.

### VIII. OIL SYSTEM

Four self-sealing tanks (one for each eng.)

Capacity (each) 85 U. S. gal. (70.8 Imp. gal.)

Service with A.A.F. Spec. AN-VV-0-446 oil, grade 1120 unless engineering officer specifies grade 1100 for cold weather operation at ground temperatures below -29°C (-20°F).

Operating oil temperature and pressure are given in Section II, Oil Pressure should be checked at 2000 RPM and 70°C to 85°C oil temperature. One turn clockwise of adjusting screw on pressure relief valve increases oil pressure approximately 10 PSI at the pump and counter clockwise decreases. Oil cooler flap starts to open at 65°C., fully open at 85°C.

Pre-Oiling—Use A.A.F. Spec. AN-VV-0-446 at temperature range of 100°F. to 175°F.

Oil Dilution:

Listed below are the specified dilution periods for different ground temperatures. Any deviation from



these dilution periods found more satisfactory by experience may be used. Any recommended changes from these periods together with all pertinent data should be forwarded to Headquarters, Air Service Command.

#### GRADE 1120 OIL

Outside Air Temperature	Dilution Period
4°C. to -7°C. (39°F. to 20°F.)	3 Minutes
-7°C. to -18°C. (20°F. to 0°F.)	4 Minutes
-18°C. to -29°C. (0°F. to -20°F.)	6 Minutes
-29°C. to -34°C. (-20°F. to -29°F.)	8 Minutes

#### GRADE 1100 OIL

Outside Air Temperatures	Dilution Period
4°C. to -12°C. ( 39°F. to 10°F.)	2 Minutes
-12°C. to -29°C. ( 10°F. to -20°F.)	4 Minutes
-29°C. to -46°C. (-20°F. to -51°F.)	7 Minutes
-46°C. to -51°C. (-51°F. to -60°F.)	8 Minutes
-51°C. to -56°C. (-60°F. to -67°F.)	9 Minutes

### IX. FUEL SYSTEM

Use AN-F-28 100/130 octane fuel.

When to Service—Before returning ship to hangar.

Quantity—Wing tanks 5608 gallons.

Wing tanks and one bomb bay 6888 gal.

Wing tanks and two bomb bays 8168 gals.

Wing Center Section: B-29 1333, B-29A 1122 gal.

Aux. Power Plant tank 4 gal.

Boost pump, rheostat control—10-25 PSI. Toggle switch, high—21.5-29 PSI; low—9-12 PSI with engine stopped.

Engine driven pump—17±1 with boost pump "off" or on "low."

One turn clockwise on adjustment increases pressure approximately 1½ P.S.I.

Fuel can be transferred only from one side of airplane centerline to the other.

### X. ENGINE FIRE EXTINGUISHER (CO<sub>2</sub>)

Cylinders (2) high pressure located on aft wall of nose wheel well.

Check red inspection discs at preflight inspection to see if cylinders have been discharged due to thermal expansion. If red disc is missing, remove cylinder, and weigh to determine if charge is lost. Weight of cylinder, charge and total weight are stamped on side of each cylinder. Also check cylinder weight every six months and re-stencil adding date and station of inspection.

CAUTION: Use care in handling. Keep discharge valve arm safety wired when installing and removing cylinders from ship. Do not fail to remove safety wire after installing cylinder in ship.

### XI. ANTI-ICER (PROPELLER)

Tank—27 gal. capacity—Fill to 24 gals.

Fluid—"Isopropyl Alcohol"

Spec. AN-F-13.

Pump Units (2) "Eclipse" or "Weldon," L. H. pump feeds inboard props and R.H. pump outboards.

At 20 PSI each pump delivers ½ gallon to 2 gallons per hour per port.

Flow controlled by rheostats.

Filters (2) Multiple Vane type, clean at 50 hour inspection.

Tank vented to cabin by flapper valve mounted vertically.

Fumes from tank by-passed through "Pressure Relief Valve."

This valve works on differential pressure, if inoperative, replace.

Run motors one minute each day to check flow.

### XII. VACUUM AND DE-ICER

Pressure relief valves in nacelles relieve at 15" to 19" Hg.

Wing center section pressure valve relieves at 14" Hg.±.5" Hg.

Lower vacuum regulator in cockpit should be set 4" Hg. and upper regulator at 4" Hg. Pilot's bank and turn vacuum set from 1.8 to 2.05" Hg. Complete cycle of boot inflation should take from 40 to 46 seconds.

Excessive oil drain at Secondary Oil separator under wing center section indicates clogged oil drain at Primary Separators in nacelles.

Air filter at instrument panel always cleaned with "air" from "inside out."

Always discharge static electricity from entire de-icer boot area before refueling.

Coat de-icers with de-icer conductive cement (A56B) at regular intervals to retain conductivity.

### XIII. OXYGEN

Low pressure—Demand type system. Dual source.

System Pressure—450 PSI. Maximum.

Bottles—18 Type G-1.

Twelve crew station control panels throughout the airplane. Each panel consists of:

Pressure Gage	Type K-1
Flow Indicator	Type A-3
Demand Regulator	Type A-12 & A-15

Recharging Procedure:

Check all emergency by pass valves on regulators to make sure they are closed tight.

Connect all portable bottles to recharger lines.

Entire system filled from one filler valve located on lower left hand side of fuselage section between fore and aft bomb bay doors.

Use only oxygen conforming to Spec. AN-0-1 grade A (dried). If not available use best grade possible with one of the standard AAF purifiers.

Fill system slowly, checking bottles for heat which indicates bottle is filling.

Check all fittings for security and leakage at 50 hour inspection. Use only castile soap, water and brush.

Antiseize and sealing compound AN-C-86, no lubricants on straight thread fittings.

CAUTION: Keep all oils and greases away from system. Be sure to have a "Full" system before every flight. Never check gage pressure with portable bottles connected to recharger lines.

### XIV. HYDRAULIC SYSTEM

Fluid Spec. AN-VV-0-366 (Red).

Tank Capacity—5 gallons (Approx.)

Fill to two gallon level with both accumulators charged to 1000 PSI with a 400 PSI preload and parking brakes on.

Working pressure range 800-1000 PSI.

Warning lights set— $875 \pm 25$  PSI. Emergency, 600 PSI. Normal.

Both accumulators must be checked at pre-flight for preload, charge with dry air to 400 PSI. Never use oxygen.

If brake action is "spongy", apply and release brakes repeatedly.

If still spongy, bleed at brake assembly bleed fittings.

If parking brakes do not hold, adjust serrated plate at parking brake linkage behind rudder pedals.

Parking brake pressure—185 lbs.  $\pm$  5 lbs.

Pull 2 Amp. fuse at engineer's aft fuse panel and bleed system pressures to zero before removing any units.

Drain sump plug for hydraulic panel located on bottom skin surface at Station 214.

2 Amp fuse for override sw. and warning lights on engineer's fwd. fuse panel.

### XV. CABIN SUPERCHARGING AND HEATING

Pressurized air taken from turbos of inboard engines. Cabin conditions maintained automatically by cabin pressure regulators as follows: 0' to 8000'—Ventila-



tion of cabin about 1" Hg. differential pressure, 8000' to 30,000'—Cabin altitude 8000'.

Above 30,000'—Cabin differential pressure 13.34" Hg. Pressure warning horn switch on engineer's auxiliary panel. Horns sound intermittent at cabin altitude of 12,000 ft. and above.

Cabin pressure regulators must be unlocked and shut-off valve open during flight.

Cabin air control on engineer's stand.

Heat taken from inboard exhaust shrouds of inboard engines.

Emergency pressure release handles to left of pilot and R. H. side Sta. 646.

Engineer's pressure relief (cabin pressure relief) valve under engineer's seat.

Heat system automatically controlled. Also manual override by switch at engineer's auxiliary panel.

#### XVI. TUBING COLOR CODE

Fuel	Red
Oil	Yellow
Oxygen Distribution Lines	Green
Oxygen Filler Lines	Green-Yellow-Green
Pitot Pressure	Black
Static Pressure	Black-Lt. Green
Manifold Pressure	White-Blue
Vacuum	White-Green
Anti-icer (Fluid)	White-Red
Air Pressure (De-icer)	Lt. Green-Lt. Blue
Hydraulic Oil Pressure	Blue-Yellow-Blue
Fire Extinguisher (CO <sub>2</sub> )	Brown
Propeller Feathering	Blue-Yellow-Blue
Vents	Red-Black

#### XVII. PNEUMATIC BOMB-BAY

Compressed Air Operation.

Compressors (one in each bomb bay) are complete, self-contained unit. Pressure cut-out switch on each compressor adjustable for cut-off at 1500 plus or minus 25 PSI. Cut on at 300 less than cut out.

Accumulators (2) filled to 1500 PSI with compressed air.

Circuit Breaker for forward compressor on Nav. cabinet, for aft compressor on fuse panel at station 646.

Pressure Relief Valves (4) one to each main accumulator set at 1750 PSI. One on each Regulator set at 300 PSI. Reseats at 250 PSI.

Pressure Reducing Regulator (2), one on each main accumulator set at 175 plus or minus 5 PSI by adjusting screw on regulator.

Pressure Warning Switches (2), one on each side of interconnecting valve. Operates Bombardier's warning lights when accumulator pressure is below 625 plus or minus 100 PSI.

Bomb Door Relay (1) near Nav. window. Time delay relay. Times cushioning and opening shock. Keeps pressure going to top of piston when doors open.

Door Latch (2) holds doors closed in flight. Check linkage for 1/32" to 1/16" above center when closed.

Emergency accumulators (2) charge 750-850 PSI.

CAUTION: Keep all valves CLOSED on ground and Red Streamer showing on safety valve. Open safety valves just prior to take-off.

Drain moisture from accumulators after every flight.

Fill compressor oil cup with AN-06A to 1/2" from shoulder.



XVIII. LANDING GEAR INCLUDING TIRES AND BRAKES

Oleo oil—A.A.F. Spec. 3580, Grade M.

With oleo collapsed fill until oil is level with filler plug hole.

Oleo air: inflate to following clearances between center of torsion pins:

Nose Gear 10" ± 1/4"

Main Gear 13.25" ± 1/4"

Tail Skid 75 PSI

Shimmy Damper Oil—A.A.F. Spec. AN-VV-0-368

Pressure gun required. Fill until fluid indicator is up to mark on cap.

Tire Inflation:

Main Gear—Use load inflation tables (T.O. 04-10-1). 56" Tire \_\_\_\_\_ Factor 355

Tire Pressure = \_\_\_\_\_ Gross Weight of Airplane  
Number of Main Casings X 355

Nose Gear—44 to 50 PSI—Rolling radius 15.3".

Brake Clearance—Minimum .010 inch.

Brake blocks are 5/8 inches thick when new and should be replaced when worn down to 17/32 inches.

XIX. CABLES—FUNCTIONS, COLOR CODES, SIZES AND TENSIONS

These tensions given are used regardless of location or temp. When more than one tension is given refer to cable diagrams in T. O. 01-20EJ-2.

SYSTEM POSITION	SIZE	COLOR CODE	LETTER CODE	TENSION
<b>Aileron:</b>				
Right up	1/8 —7x19	White & Black	AA	125 lbs. ± 10
Left up	3/16—7x19	White & Black	AA	125 lbs. ± 10
Left down	1/8 —7x19	White	AB	125 lbs. ± 10
Right down	3/16—7x19	White	AB	125 lbs. ± 10
<b>Aileron Tab:</b>				
Right up	3/32—7x7	White	ATB	40 & 80 ± 10
Left down	3/32—7x7	White	ATB	40 & 80 ± 10
Right down	3/32—7x7	White & Black	ATA	40 & 80 ± 10
Left up	3/32—7x7	White & Black	ATA	40 & 80 ± 10
<b>Aileron Bus</b>				
Aileron Servo	1/8 —7x19	White	ABS	150
Rudder Left	3/16—7x19	White	AS	100 lbs. ± 10
Rudder Right	3/16—7x19	Light Green & Black	RA	75 & 150 ± 5
Rudder Tab Left	3/32—7x7	Light Green	RB	75 & 150 ± 5
Rudder Tab Right	3/32—7x7	Light Green & Black	RTA	15 & 30 ± 5
Rudder Servo Left	1/8 —7x19	Light Green	RTB	15 & 30 ± 5
Rudder Servo Right	1/8 —7x19	Light Green & Black	RSA	90 lbs. ± 5
		Light Green	RSB	90 lbs. ± 5

Elevator Down	3/16—7x19	Yellow & Black	EA	150 lbs. ± 10
Elevator Up	3/16—7x19	Yellow	EB	150 lbs. ± 10
Elevator Tab Down	3/32—7x7	Yellow & Black	ETB	30 & 60 ± 10
Elevator Tab Up	3/32—7x7	Yellow	ETA	30 & 60 ± 10
Elevator Servo Down	1/8 —7x19	Yellow & Black	EA	90 lbs. ± 10
Elevator Servo Up	1/8 —7x19	Yellow	EB	90 lbs. ± 10
Surface Control Lock	1/8 —7x19	Red	SLA	20, 40 & 60 lbs. ± 10
Surface Control Lock	3/32—7x7	Red	SLA	20, 40 & 60 lbs. ± 10
(Throttle—Ail. Unlock	1/8 —7x19	Red & Black	SLB	20, 40 & 60 lbs. ± 10
Rudder—Elevator)	3/32—7x7	Red & Black	SLB	20, 40 & 60 lbs. ± 10
Throttle—Open	3/32—7x7	Black & Black	T1A-T2A	15, 20 & 30
	3/32—7x7	Black & Black	T3A-T4A	35 & 50 ± 5
Throttle—Close	3/32—7x7	Black Red Black	T1B-T2B	35 & 50 ± 5
	3/32—7x7	Black Red Black	T3B-T4B	
Mixture—Auto Rich	3/32—7x7	Brown	M1B-M2B	40 lbs. ± 10
			M3B-M4B	
Mixture—Cut Off	3/32—7x7	Brown & Black	M1A-M2A	40 lbs. ± 10
			M3A-M4A	
Tank Selector—On	3/32—7x7	Light Blue & Brown	TS1A-TS2A	40 lbs. ± 10
Tank Selector—Off	3/32—7x7	Light Blue & Brown	TS1B-TS2B	40 lbs. ± 10

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## Vacuum Sel. Valve:

R.H. Eng. On	3/32—7x7	Yellow & Red	VSVB	40 lbs. ± 10
L.H. Eng. On	3/32—7x7	Yellow & Red	VSVA	40 lbs. ± 10
Antenna Fairlead:				
Release	3/32—7x7	Black, White & Black	RAB	40 lbs. ± 10
Retract	3/32—7x7	White, Black, White	RAA	40 lbs. ± 10
Cabin Air Valve:				
Open	3/32—7x7	Light Green & Brown	CALB	40 lbs. ± 10
Close	3/32—7x7	Light Green & Brown	CARA	40 lbs. ± 10
Emerg. Cab. Pres.:				
Release	3/32—7x7	Red, Brown & Red	ECPR	Remove slack-spring
Emerg. L.G. Door:				
Release	3/32—7x7	Red, Red & Red	ELDG	Remove slack-spring
Fire Ext.—Release	1/16—7x7	Black, Brown & Red	FE	Remove slack-spring
Life Raft—Release	3/32—7x7	Lt. Blue, Black & Lt. Blue	LR	Remove slack
Emerg. Bomb Door:				
Release	3/32—7x7	Red, Lt. Green & Red	EBDR	Remove slack

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## XX. STRUCTURES—COMBAT REPAIR INFORMATION

If possible adhere strictly to the repair diagrams in Technical Order 01-20EJ-3.

Replacement of Bolts—Light drive fit may be replaced with the original size bolt if they are carefully removed and holes are not enlarged. Damaged or enlarged holes must be reworked and original bolts replaced by a 1/64 inch oversize bolt. Procedure for rework is the same as for a new hole. Where BAC bolts of special types have been used in original structure, they are to be replaced with bolts of the same kind.

### TORQUE WRENCH SETTINGS FOR AIRCRAFT NUTS

BOLT SIZE	TORQUE—POUND INCHES		
	STEEL		ALUMINUM
	365 (AC) & AN 310	364 (AC) & AN 320	365D (AC) AN 310D
10/32	20-25	12-15	10-12
1/4 -28	50-70	30-40	25-35
5/16-24	100-140	60-85	50-70
3/8 -24	170-280	100-170	85-140
7/16-20	290-480	175-290	145-240
1/2 -20	490-740	300-450	250-370
9/16-18	800-1000	480-600	
5/8 -18	1100-1300	600-780	
3/4 -16	1900-2400	1100-1500	
7/8 -14	2900-3800	1700-2300	
1 -14	4000-6200	2400-3700	
1 1/8 -12	5400-7400	3200-4400	
1 1/4 -12	9000-11000	5400-6600	

### DRILL SIZES FOR LIGHT DRIVE FIT BOLTS

BOLT DIAMETER	BOLT HOLES (Always measure each bolt with a micrometer and allow a max. of .0015" between bolt and hole.)		ACCESS HOLES (12 Point Sockets for Bolts)
	PILOT HOLE DRILL SIZE (1/32 Undersize)	FINAL DRILL OR REAM SIZE	
3/16 (10-32)	No. 21 (.159 )	No. 11 (.191 )	21/32 (.66)
1/4	7/32 (.2187)	1/4 (.250 )	11/16 (.69)
5/16	9/32 (.2812)	5/16 (.3125)	25/32 (.78)
3/8	11/32 (.3437)	3/8 (.375 )	27/32 (.85)
7/16	13/32 (.4062)	7/16 (.4375)	15/16 (.94)
1/2	15/32 (.4687)	1/2 (.500 )	1 1/8 (1.13)
9/16	17/32 (.531 )	9/16 (.5625)	1 1/4 (1.25)
5/8	19/32 (.594 )	5/8 (.625 )	1 7/16 (1.44)
3/4	23/32 (.719 )	3/4 (.750 )	1 5/8 (1.63)
7/8	27/32 (.844 )	7/8 (.875 )	1 7/8 (1.88)
1	31/32 (.969 )	1 (1.000)	2 1/8 (2.13)



DRILLS

Size	Decimal Equivalent	Size	Decimal Equivalent	Size	Decimal Equivalent	Size	Decimal Equivalent
1/2	.5000	G	.2610	23	.1540	1/16	.0625
31/64	.4844	F	.2570	24	.1520	53	.0595
15/32	.4687	1/4	.2500	25	.1495	54	.0550
29/64	.4531	D	.2460	26	.1470	55	.0520
7/16	.4375	C	.2420	27	.1440	56	.0469
27/64	.4219	B	.2380	28	.1406	57	.0430
Z	.4130	15/64	.2344	29	.1360	58	.0420
13/32	.4062	A	.2340	30	.1285	59	.0410
Y	.4040	#1	.2280	31	.1250	60	.0390
X	.3970	2	.2210	32	.1200	61	.0380
25/64	.3906	7/32	.2187	33	.1160	62	.0370
W	.3860	3	.2130	34	.1130	63	.0360
V	.3770	4	.2090	35	.1100	64	.0350
U	.3750	5	.2055	36	.1094	65	.0330
3/8	.3680	6	.2040	37	.1065	66	.0320
23/64	.3594	13/64	.2031	38	.1040	67	.0313
T	.3580	7	.2010	39	.1015	68	.0310
S	.3480	8	.1990	40	.0995	69	.0292
11/32	.3437	9	.1960	41	.0980	70	.0280
R	.3390	10	.1935	42	.0960	71	.0260
Q	.3320	11	.1910	43	.0937	72	.0250
21/64	.3281	12	.1890	44	.0935	73	.0240
P	.3230	3/16	.1875	45	.0890	74	.0225
O	.3160	13	.1850	46	.0860	75	.0210
N	.3125	14	.1820	47	.0820	76	.0200
19/64	.2969	15	.1800	48	.0810	77	.0180
M	.2950	16	.1770	49	.0785	78	.0160
L	.2900	17	.1730	50	.0781	79	.0156
9/32	.2812	11/64	.1719	51	.0760	80	.0135
K	.2810	18	.1695	52	.0700		
J	.2770	19	.1660				
I	.2720	20	.1610				
H	.2660	21	.1590				
17/64	.2656	22	.1570				
		5/32	.1562				

RIVET SPECIFICATIONS

90° \*\*

78° \*\*

100°

ROUND HEAD  
\*AN 430  
\*\*AN 435

FLAT HEAD  
\*AN 442  
\*\*AN 441

COUNTERSUNK HEAD  
\*BAC 1341  
\*AN 425  
\*\*AN 420

COUNTERSUNK HEAD  
\*AN 426

BRAZIER HEAD  
\*AN 456

SKIN HEAD  
BAC 1345

Note: \*—Aluminum Alloy  
\*\*—Iron and Copper

RIVET NUMBER CODE:

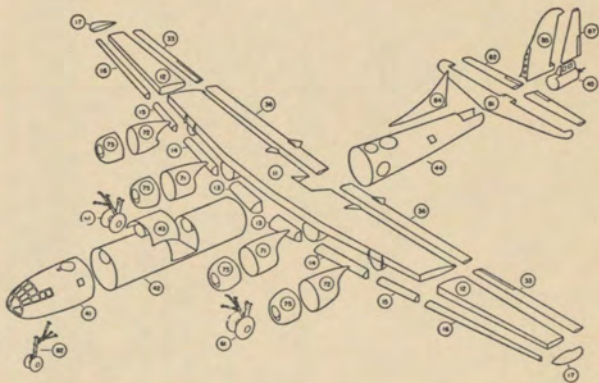
AN 430 - AD 5 - 12

Length in 16ths of an inch  
Diameter in 32nds of an inch  
Material Code as shown below (A17ST)  
Head Style  
Army-Navy Specification

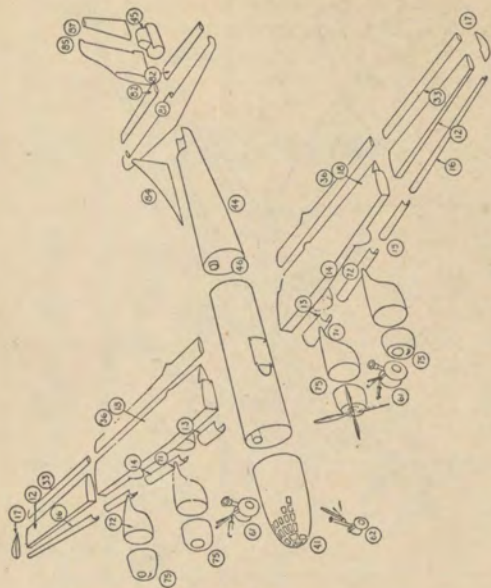
HEAD MARKINGS	MFG. COMP. CODE	AN MATERIAL CODE	CONDITION	SHEARING STRENGTH PSI	HEAT TREAT BEFORE USING
(C) Dimpled	A17S-T	AD	(T) Heat Treated	27,000	No
(+) Raised Cross	56S	B	As Fabricated	27,000	No
(-- --) Raised Double Dash	24S-T	DD	(T) Heat Treated	35,000	Yes
(O) Raised Teat	17S-T	D	(T) Heat Treated	30,000	Yes
(△) Raised Triangle	56S	B	1/4 Hard	25,000	No

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MAJOR ASSY. BREAKDOWN - B-29



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MAJOR ASSY. BREAKDOWN - B-29A

DRILL SIZES FOR RIVETS

RIVET DIAMETER	DRILL SIZES	DECIMAL EQUIVALENTS
1/16"	51	.067
3/32"	40	.098
1/8"	30	.128
5/32"	20	.161
3/16"	10	.194
1/4"	F	.257
5/16"	O	.316
3/8"	V	.377

XXI. ELECTRICAL SYSTEM—DESCRIPTION AND ADJUSTMENTS

DESCRIPTION:

28-volt, direct current, single wire, ground return system.

Power Supply: (D.C.)

Six Type R-1 (300 Amp.) generators, engine driven, two on each outbd. and one on each inbd. engine. One Type P-2 (200 Amp.) generator on aux. power plant. One Type G-1, 34 ampere hour, 24 volt battery. External power receptacle in nose wheel well.

Power Supply: (A.C.)

Two (normal and emergency) Holtzer-Cabot Type MG-149F, 750 volt-ampere inverters supply 115 volt A.C. current to the electronic turbo control, Fluxgate compass, Radio compass and A.P.I.

ADJUSTMENTS:

Starter brushes to be replaced if worn within 1/8 inch of edge of rivet which fastens pig-tail to brush.



P-2 generator has a minimum brush length of 1/2" and brush spring tension of 60-66 oz.

R-1 generator has a minimum brush length of 23/32" and brush spring tension of 22 to 26 oz.

Voltage Regulators: Ref: T.O. 03-5-39

Adjust individually to 28 volts at 1800 RPM with all generator switches off including auxiliary power unit. Check load balance in flight. Not more than 10% difference in proportionate amperage load allowed between generators.

Reverse Current Relays:

Note: For differential type relays see T.O. 03-5AD-19.

#### LIMIT SWITCH ADJUSTMENTS:

Main and Nose Wheels:

Normal: Up 1/4 turn of motor drive shaft from mechanical stop. Down 1/4 turn of motor drive shaft from mechanical stop. Tail skid 1/4 turn up, 1/4 down.

Nacelle Doors:

Up 1/2 turn of door screw from mechanical stop.  
Down 1/2 turn of door screw from mechanical stop.

Wing Flap:

Up 1/2 + 1/2 - 0 turn of torque drive shaft from mechanical stop. Down 1 1/2 ± 3/8.

Bomb Doors:

Up 1.3 turns of retracting screw housing from stop.  
Down 1.3 turns of retracting screw housing from stop. (Screw actuated doors only)

Oil Cooler Flap: Actuator 25040  
Closed—Max. compression of seal .06".  
Open—4.50" ± .20" travel from closed position.

Intercooler Flap: Actuator 25080  
Closed—Compress rubber seal .06" + .03" - .06".  
Open—4.40" ± .20" gap.

Cowl Flaps: Limit switches are preset at factory and if operating satisfactorily will give the following opening:

Closed—Short flaps .62" gap.  
Long flaps .50" gap.

Open—Short flap 6.47" gap.  
Long flap 7.27" gap.

#### XXII. INSTRUMENTS

##### FLUX GATE COMPASS SYSTEM:

CAUTION: Always cage flux gate transmitter when removing and uncage after installing. Resistance check of the flux gate compass should give values within + or -10% of the table below.

TRANSMITTER		MASTER INDICATOR	
A to B	190 ohms	A to B	17 ohms
C to D	8-10 ohms	B to C	17 ohms
E to F	45-58 ohms	A to C	17 ohms
E to G	45-58 ohms	D to E	55 ohms
F to G	45-58 ohms	G to H	50 ohms
MAGNESYN REPEATER		I to J	50 ohms
A to B	180 ohms	K to L	9 ohms
B to C	60 ohms	K to N	3 ohms
C to D	60 ohms	L to M	3 ohms
A to D	60 ohms	M to N	3 ohms
		Terminal "F" is blank	

To check the voltage, turn Inverter Switch to "Normal" position. Use a suitable 0-150 volt AC voltmeter.

Transmitter Receptacle At Amplifier		Master Indicator Receptacle at Amplifier	
(Airplane not moving)			
A to B	115 volts	K to L	26 volts
C to D	6-8 volts	G to H	26 volts
		I to J	3 to 32 volts

Magnesyne Repeater  
Receptacle  
at Amplifier  
A to B 26 volts

1 amp. fuse located at amplifier—3 amp.

Fuse for caging motor located at shield No. 586.

#### DIRECT PRESSURE INSTRUMENTS:

Thread lubricant A.A.F. Spec. 2-85-B must be used on all pipe fittings.

Clean filling equipment must be used.

A pressure of 25 PSI must not be exceeded when filling system.

Before filling or pressure testing system, be sure that diaphragm plate has been pushed in and locked against diaphragm.

After filling make sure caps are tight on filler and bleed valves.

After filling be sure and release diaphragm stop plate.

Use only fluid A.A.F. Spec. AN-VV-C-551 or 2-57 for the transmitting medium.

#### FLIGHT INSTRUMENTS:

Always disconnect all Altimeters, Air-Speeds, Rate of Climb Indicators, when blowing out Pitot-Static lines and blow out static and pitot lines away from instruments, toward pitot-static source.

When removing or installing thermocouple indicator interconnect all terminals on back of indicator.

#### XXIII. GENERAL LUBRICATION

Basic steps which contribute to successful lubrication are: Cleanliness, inspection, selection of correct lubricant, proper application, and the keeping of maintenance records. CAUTION keep lubricants away from oxygen system!

Operating conditions which greatly affect lubrication are extremes of heat or cold, condensation, salt water, and dust.

Inspect for wear, deterioration or loss of lubricant, moisture, etc., at the specified period or oftener. Relubricate as often as necessary for proper condition and operation.

Specified lubricants are:

Low Temperature Grease, AN-G-3.

Low Temperature E. P. Grease, AN-G-10.

High Melting Point Grease, 3560.

Low Temperature Oil, AN-O-6, Substitute 2-27.

LUBRICATION GUIDE (period, lubricant, location)

\* Be careful of incorrect inspection or lubrication!

#### ZERK FITTINGS:

P.F. AN-VV-0-366\* Shimmy damper\*

25 Hr, AN-G-3, wing flaps; nose, main and tail gear

50 Hr, AN-G-3, cowl flaps; rudder pedals; rudder

and elevator trim tabs; nose spindle rocker arm.

25 Hr, AN-G-3, nose spindle bearing.



50 Hr, AN-G-3, wheel door limit switch gear boxes.

#### ENCLOSED UNIVERSALS:

200 Hr. AN-G-3, wing flaps, trim tabs; bomb doors

GEAR BOXES\* (lubricate to 1/3 capacity)

200 Hr, AN-G-3; wing flaps; nose, main gear; wheel door; bomb doors; bomb control.

200 Hr, AN-G-10, intercoolers & oil coolers to 3/4 capacity.

500 Hr, (overhaul) AN-G-10, cowl flaps; tail skid.

#### ACTUATING OR RETRACTING SCREWS:

P.F., AN-G-3, Wing flaps

100 Hr, AN-G-10, main gear, nose gear and tail skid

200 Hr, AN-G-10, oil coolers; intercoolers;

200 Hr, AN-G-3, wheel doors; bomb doors; trim tabs.

#### ANTI-FRICTION BEARINGS (pack bearings, but not hub)

200 Hr, 3560, nose & main wheels\*;

200 Hr, AN-G-3, nose spindle bearing

#### SEALED BEARINGS\* (inspect carefully when accessible)

Factory packed, pulleys; bellcranks; linkage, etc.

#### CONTROL CABLES\* (local practices vary)

50 Hr. AN-G-3 where cables pass through pressure seals, fairleads & pulleys; AN-C-52 may be used on cables between above units.

#### MISCELLANEOUS:

P.F., AN-G-3, pilots' windows; Bombardiers' seat

P.F., no lube (wipe) shock struts; wing flap tracks.

25 & 50 Hr., AN-0-6, exposed universals; hinges; pinned joints; slides; trailing antenna; etc. as needed.

200 Hr., AN-G-3, control column sprocket, chain, gears.

50 Hr., AN-G-3, thin coating on cam & roller of nose wheel centering mechanism.

Auxiliary equipment is not included in this summary.

See T.O. 01-20EJ-2 for additional information.

#### XXIV. WEIGHTS AND BALANCE

AN 01-1B-40 and a load adjuster is carried in Navigator's Cabinet of each B-29 airplane.

Recommended Maximum Gross Weight 120,000 lbs.

Basic Weight (approximate) 75,000 lbs.

Recommended Maximum Landing Weight 120,000 lbs.

Mean Aerodynamic Chord 154.4"

Reference datum to leading edge of M. A. C. 391.5"

C. G. for Basic Airplane (Approx.) 26% M. A. C.

Loading Range	Station	% M. A. C.
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Forward Limit	419	18
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Aft Limit	444	34
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Recommended jig point (Nose jacking cone) Station 151.

Location of Leveling Hook—Above R.H. catwalk fwd. B-Bay, Sta. 365.5.

If CG is aft of 44% MAC the airplane will tip up off the nose wheel.

Load adjuster Index:

110—Basic Weight x (445.5—Basic Arm.)  
25,000

With oleos compressed and nose and main wheel tires inflated to correct pressure:

a. Reference datum to C.L. of nose wheel 49.35".

b. Reference datum to C.L. of main wheel 460.987".

c. To level fuselage lower nose wheel 13.7".



XXV. INSPECTION PERIODS

Inspection	Type of Inspection	When Accomplished	Symbols if not made	How long without
PRE-FLIGHT	Instruments, controls auxiliary systems and power plant for proper functioning servicing of plane and fastening of cowling, fuel caps, etc.	Prior to first flight of the day and for all transient aircraft.	Red Dash	6 days
DAILY	General condition of airplane and engine.	Each flying day.	Red Dash	6 days
25 HOUR	Thorough and searching, includes the pre-flight and daily.	Between 20th and 30th hr. after last 50 hour inspection.	Red Dash 25th hr.—Red diagonal after 30th hour.	1 month

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INSPECTION PERIODS (CON'T)

Inspection	Type of Inspection	When Accomplished	Symbols if not made	How long without
50 HOUR	Includes pre-flight daily and 25 hour. Complete thorough and searching inspection.	Between 40th and 60th Hr. after last 50 hr. inspection.	Red dash after 50th hour. Red diagonal after 60th hour.	3 Months
300 HOUR 100 HOUR 200 HOUR	Special inspection.	Concurrently with 50-hour inspection.	Same symbol as applies to 50-hr. inspection.	3 Months
ENGINE CHANGE	Special inspections and maintenance work.	Each time an engine is changed.		
25 HOUR AFTER ENGINE CHANGE	Engine shakedown inspection.	Between 20th and 30th flying hours after engine change.	Red dash after 25th hr. Red diagonal after 30th hr.	
WEEKLY & DAILY	Battery Check.	Weekly & Daily.	Red Dash	

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## XXVI. INSPECTION FORM SYMBOLS

SYMBOL	EXPLANATION OF SYMBOL
Red Cross	Major defects or unsatisfactory condition. This symbol grounds the airplane until defects are corrected.
Red Diagonal	Minor defect. "Exceptional release" must be signed before airplane can be flown.
Red Dash	Required inspection not made. Requires "Exceptional release."
Red symbol with small numeral added	Indicates more than one defect in column. Small numeral indicates total defects in column regardless of predominating symbol. Predominating symbol will always indicate most serious defect.
Black last name initial	Inspection made condition satisfactory, except column No.'s 10, 19 and 30, which indicates "Inspection Performed" but not the results thereof.
Black last name initial with circle	Indicates "Greased or Oiled" except in column 46 which indicates "Water Added to Battery."
Black Dash	Inspection today not required.
Vertical black line through column	Indicates this column "Not Applicable."

## XXVII. LIFE RAFT

Type E-2; cap. 7 men (2500 lbs.); T.O. 04-15-1

Inspections: (1) installation, (2) 200 hrs. or 60 days, (3) 6 mo. check flotation tube, bulkhead, manifold, mattress valves, CO<sub>2</sub>, accessories and kit, attaching cord, compartment and releases, proper installation. Raft is unserviceable after 3½ yrs. from date of manufacture.

Accessories in raft pockets: (1) compass, (2) repair plugs, (3) seine twine, (4) scout knife, (5) police whistle, and (6) sea anchor.

Accessories in kit (in order of relative importance): (1) inflation pump and hose, (2) 2 (3 sec.) oars, (3) pyrotechnic kit, (4) water, (5) first-aid kit, (6) fishing kit, (7) size 77 paulin, (8) water containers, (9) signal mirror, (10) A rations, (11) size 35 paulin, (12) 1 (2 sec.) oar, (13) bailing bucket, (14) navigation charts, (15) sun protective ointment, (16) flashlight, (17) repair kit, (18) sea marker, (19) religious booklets, (20) sponge, and (21) "The Raft Book."

Radio set SCR-578-A (transmitter & accessories) is also installed. (T.O. AN08-10-94)

## XXVIII. AUXILIARY POWER PLANT

ANDOVER -----T. O. AN-02-95A-2

	Andover
Model	V-32
U. S. Army Type	D-2
No. of Cylinders	2
Bore	2 3/4
Stroke	2 11/16
Piston Displacement	31.91
Compression Ratio	7.8 to 1
Idle R.P.M.	1800
Operating R.P.M., 0-150% Load	3500-3200
Normal Rating H.P.	10
Emer. H. P. 5 min. only	15
Weight inc. Generator	120
Valve Adj. Clear. (cold)	.005
Wico Magneto Model	Rem 1574
Magneto Point Gap	.015
B.T.C. Ret. Mag. Timing	18°
B.T.C. Adv. Mag. Timing	30°
Spark Plug Type	C26S or SS87
Spark Plug Gap	.020
Fuel Grade (AN-F-28)	100 Octane
Oil Grade (AN-VV-0-446)	1065
Oil Pressure	35 to 75
	60 des.
Overhaul Period	600 Hrs.

Inspections: (1) Preflight and daily check fuel, oil, and condition of engine; pull engine through; check operation and voltage output; (2) 50 Hr. change oil (do not flush); clean oil, air and fuel

filters; drain carburetor; check magneto timing, breaker gap, valve clearances, compression; install new plugs.

## XXIX. LIST OF SERVICE TOOLS

Part Number	Description
F65000	Kit assy.—Operational Squadron, tools in this kit indicated by O.S. I.
F65002	Kit assy.—Operational Squadron, tools in this kit indicated by O.S. II.
F65100	Kit assy.—Service Squadron, tools in this kit indicated by S.S. I.
F65102	Kit assy.—Service Squadron, tools in this kit indicated by S.S. II.
F65200	Kit assy.—Major overhaul, tools in this kit indicated by M.O. I.
F65202	Kit assy.—Major overhaul, tools in this kit indicated by M.O. II.
F50300	Sling Inbd. Wing Panel (B-29).
F65101	Roll—Service Squadron Tool—SS I.
F65001	Roll—Operational Squadron Tool—OS I.
F65003	Roll—Operational Squadron Tool—OS II.
F65101	Roll—Service Squadron Tool—SS I.
F65103	Roll—Service Squadron Tool—SS II.
F65201	Roll—Major overhaul Tool—MO. I.
F65203	Roll—Major overhaul Tool—MO. II.
F60001	Wrench—Internal Fuel Tank & Wing Joint Bolts—OS*—SS—MO I & II.
F60002	Wrench—Internal Fuel Tank & Wing Joint Bolts—OS*—SS—MO I & II.



Part Number	Description
F60003	Wrench—Internal Wing Joint Bolts—OS*—SS—MO-I & II.
F60005	Wrench—Internal Fuel Tank & Wing Joint Bolts—OS—SS—MO-I & II.
F60006	Wrench—Internal Fuel Tank & Wing Joint Bolts—OS—SS—MO-I & II.
F60007	Wrench—Internal Wing Joint Bolts—OS—SS—MO-I & II.
F60008	Wrench—For ¾" Internal Wrenching Bolts—OS—SS—MO-I & II.
F60300	Wrench—Carburetor Filter—OS—SS—MO-I & II.
F60301	Screwdriver—Crosspoint ⅜" Square Drive for ½" wing joint bolts—SS—MO-I & II.
F60302	Screwdriver—Crosspoint ½" Square Drive (for ⅝" wing joint bolts)—SS—MO-I & II.
F60401	Wrench—Hook Spanner (for sleeve flap oper. mech.)—SS—MO-I & II.
F60402	Wrench—Hook Spanner for Bomb and Nacelle Door Gear Box—SS—MO-I & II.
F60403	Wrench—Hook Spanner (for tail skid oleo lock ring)—SS—MO-I & II.
F60501	Wrench—2 Lug Spanner (for packing gland adapter on bomb and nacelle door)—MO-I.
F60601	Wrench—2 Peg Spanner (for bomb door and M.L.G. oper. shafts)—MO-I & II.
F60800	Link Scissors—Nose Wheel—OS—SS—MO-I & II.
F60900	Link Scissors—Main Wheel—OS—SS—MO-I & II.
F61200	Wrench—1" Internal Wrenching (for main oleo bolts)—SS—MO-I & II.
F61300	Wrench—⅞" Internal Wrenching ⅞" Bolt (for nose wheel oleo and nacelle hex. 1" connecting bolts)—SS—MO-I & II.

Part Number	Description
F61501	Gage—Clearance, Turbo Wheel and Nozzle Box—OS—SS—MO-I & II.
F61503	Gage—Clearance, Turbo Wheel and Cooling Cap—OS—SS—MO-I & II.
F61602	Adapter—Torque Wrench ½" Square Drive—SS—MO-I & II.
F61800	Wrench—Spanner, Retracting Screw Retainer Caps and Nuts—OS—SS—MO-I & II.
F62000	Wrench—Spanner, adjustable "V"—OS—SS—MO-I & II.
F62201	Wrench—2 Lug Spanner (for M.L.G. packing nut)—OS—SS—MO-I & II.
F62202	Wrench—2 Lug Spanner (for nose L.G. packing nut)—OS—SS—MO-I & II.
F62203	Wrench—2 Lug Spanner (for tail skid oleo packing nut)—OS—SS—MO-I & II.
F62301	Wrench—Socket, M.L.G. Piston Nut 5-11/32" hex nut—MO-I & II.
F62302	Wrench—Socket, Nose L.G. Piston Nut 3-13/32" hex nut—MO-I & II.
F62303	Wrench—Socket, Nose L.G. Spindle Retainer 4-21/32"—MO-I & II.
F62600	Clamp—Horizontal Stabilizer—SS—MO-I & II.
F62701	Wrench—Socket (for M.L.G. hub nut 4" hex nut)—OS—SS—MO-I & II.
F62702	Wrench—Socket (for nose L.G. hub nut 2⅞" hex nut)—OS—SS—MO-I & II.
F62901	Pin—Aligning (for fuel tank vent fitting 1-½" dia.)—OS—SS—MO-I & II.
F62902	Pin—Aligning (for fuel tank interconnecting fitting 1-15/16" dia.)—OS—SS—MO-I & II.

Part Number	Description
F62903	Pin—Aligning (for fuel tank filler neck 2-3/4" dia.)—OS-SS-MO-I & II.
F63200	Wrench—Generator 9/16" Opening 3/8" Nut—OS-SS-MO-I.
F63300	Wrench—Starter 5/8" Opening 7/16" Nut—OS-SS-MO-I & II.
F63501	Pin—Aligning (for wing joint sta. 510)—SS-MO-I & II.
F63600	Wrench—Open End (for prop. gov. removal 1/2" opening 5/16" nut)—OS-SS-MO-I & II.
F63701	Wrench—Plug, M.L.G. Retracting Gear Shaft—OS-SS-MO-I & II.
F63702	Wrench—Plug, Nose L.G. Retracting Gear Shaft—OS-SS-MO-I & II.
F63800	Adapter—Hand Crank—OS-SS-MO-II.
F64000	Compressor—Nose L.G. Compressor Spring Assy.—SS-MO-I & II.
F64101	Pin—Stabilizer Aligning 9/16—SS-MO-I & II.
F64102	Pin—Stabilizer Aligning 15/16"—SS-MO-I & II.
F64103	Pin—Vertical Fin Aligning 11/16"—SS-MO-I & II.
F64700	Wrench—Nose and Main Oleo Piston—OS-SS-MO-I & II.
F64801	Wrench—4 Peg, M.L.G. and Nose L.G. Retracting Screw Gear—MO-I & II.
F64802	Wrench—4 Peg, Flap Mech. and Door Operating Gears—MO-I & II.
F65400	Kit Assy.—Reamer, Countersink & Pilot, Outer Wing Splice—Service Squadron.
F65400	Kit Assy.—Reamer, Countersink & Pilot, Outer Wing Splice—Major overhaul.

Part Number	Description
F23280	Kit Assy.—Reamer for Structural Repair (for use with AN bolts)—Service Squadron.
F23280	Kit Assy.—Reamer for Structural Repair (for use with AN bolts)—Major overhaul.

#### GROUND HANDLING EQUIPMENT

F50300	Sling—Inboard Wing Panel (B-29A only).
F50400	Sling—Outboard Wing Panel.
F50401	Sling—Outboard Wing Panel.
F50501	Sling—Quick Change Engine Unit (Engine with Cowling).
F50500	Sling—Quick Change Engine Unit (cannot be used with Cowling on Engine)
F50600	Sling—Horizontal Stabilizer or Emphannage Unit.
F50700	Sling—Vertical Stabilizer.
F51100	Hoist—Engine & Propeller.
F51300	Dolly—Main Landing Gear Oleo.
F51703	Sling—Nacelle (Less Engine).
F50800	Ladder—Nacelle Servicing (1 set).
F63000	Pad—Wing Jacking.
F51601	Pad—Nacelle Support L.H.
F51602	Pad—Nacelle Support R.H.
F63100	Eye—Mooring.

#### XXX. IDENTIFYING SERIES NUMBERS OF ACTIVE TECHNICAL ORDERS

00	Indexes and Publications of a General Nature
01	Aircraft and Maintenance Parts
02	Engines and Maintenance Parts



- 03 Aircraft Accessories
- 04 Aircraft Hardware and Rubber Materials
- 05 Aircraft Instruments and Laboratory Test Equipment
- 06 Fuels and Lubricants
- 07 Dopes, Paints and Related Materials
- 08 Electrical Equipment and Supplies
- 09 Aerial Targets & Gliders
- 10 Photographic Equipment and Supplies
- 11 Aircraft Combat Material
- 12 Fuel and Lubricating Equipment and Supplies
- 13 Clothing, Parachutes, Equipment and Supplies
- 14 Prefabricated Hangars and Buildings
- 16 Communications—Equipment
- 17 Machinery, Shop and Warehouse Equipment
- 18 Special Tools and Equipment
- 19 Ground Equipment
- 22 Woods
- 23 Metals and Composition Material
- 24 Chemicals
- 25 Office Equipment and Supplies
- 27 Excess and Surplus Property
- 28 Synthetic & Special Training Devices
- 29 Commercial Hardware and Miscellaneous Supplies
- 30 Training Aids
- 31 Boats and Marine Engines

**XXXI. TECHNICAL ORDER REFERENCES (NUMERICAL)**

Part Number	Description
00-1	Index of Technical Publications & Information
00-15-1	Army Air Forces Technical Inspection Manual

Part Number	Description
00-20A	The Army Air Forces Visual Inspection System for Airplanes
00-20A-2	Airplane Maintenance Instruction Forms
00-25-4	Aircraft Maintenance Procedure and Overhaul of Engines
00-25-6	Take-Off and Landing Precautions
00-25-9	Preparation of Freight for Air Shipment
00-25-15	Technical Order Compliance in Combat Areas
00-25-20	Compliance with Manufacturer's Service Bulletins
00-25-21	Use of Needed Parts from Disabled Airplanes
00-30-32-2	Kit, Aircraft Electrician
00-30-33	Kit, Aircraft Inspector
00-30-39-1	Kit, Carpenter
00-30-45-2	Kit, Crew Chief
00-30-55-3	Kit, Mechanic, Armorer
00-30-65-1	Kit, Operator, Radio
00-30-105D	Equipment Set, Special Tools Carb.
00-30-105F	Equipment, Special Tools and Fixtures for Overhaul of Pumps.
00-30-105H	Equipment Set, Special Tools and Fixtures for Overhaul of Superchargers
00-30-156	Kit, Oxygen Testing (Squadron Aircraft)
00-35A-15	Technical Order Compliance Parts Kits
00-60 Series	Arctic, Desert & Tropic Publications (Aeronautical and Ground Equipment)



Part Number	Description
00-65 Series	U. R. Digest
01-1-1	Cleaning of Aeronautical Equipment
01-1-2	Corrosion Treatment for Airplanes
01-1-7	Long Time Storage of Airplanes
01-1-8	Ventilation of Airplanes in Hot Weather
01-1-13	Operation of Airplanes Equipped with Air Filters
01-1-17	Flying Multi-Engined Airplanes with One or More Engines Useless
01-1-22	Use of Demountable Engine Mount Assemblies
01-1-23	Cleaning of Carburetor Air Filters
01-1-24	Equipment Comprising "Complete Airplane"
01-1-26	Frayed Control Cables
01-1-27	Use of Landing Wheel Brakes
01-1-33	Operation and Technique of Nose Wheel Airplanes
01-1-39	Installation of Air Intake Dust Excluders
01-1-50	Towing, Ground Handling, Parking and Mooring
01-1-51	Addition of Stencil at External Power Receptacle
01-1-52	Connection of External Power Sources to the Electrical System of Airplanes
01-1-61	Use and Conservation of Electrical Power
01-1-65	Removal and Stenciling of Anti-Icer Fluid Tank

Part Number	Description
01-1-66	Instructions for Operation of Auxiliary Electric Power Plants
01-1-68	Inspection of All Electrical Junction Boxes —All Aircraft
01-1-69	Annealing of Fuel, Oil and Water Lines
01-1-87	Anti-Icing Systems
01-1-89	Installation of Drain Cock, Oil Tank Sump
01-1-109	Precautions Against Fouling Controls
01-1-117	Installation, Use and Inspection of Aeronautical First-Aid Kits
01-1-123	Installation of Static Ground
01-1-144	Installation Inspection of Turbosuperchargers
01-1-156	Procedure to Be Followed in Case of Fire During Flight
01-1-176	Inspection of Nacelle Junction Boxes for M.H. Turbo Control System
01-1-186	Tactical Changes in Production Aircraft
01-1-193	Prevention & Extinguishing of Engine Induction System Fires
01-1-200	Installation of Grounding Wire and Clip on Auxiliary Power Plants
01-1-202	Changes in Electrical Wiring Diagrams
AN 01-1A-1	General Manual for Structural Repair
01-1B Series	Weight & Balances
01-20EJ-1	Pilot's Flight Operating Instructions B-29

Part Number	Description
01-20EJ-2	Erection and Maintenance Instructions B-29
01-20EJ-3	Structural Repair Instructions—B-29
0-20EJ-4	Parts Catalogue for B-29 Airplanes
01-20EJ-6	Interchangeable Parts List—B-29 Series
01-20EJ-7	Basic Weight & Check List
01-20EJ-13*	Install. of Elevator Bal. Weights & Retainers
01-20EJ-18	Mod. of Microphone Sw. Wiring in Control Wheels
01-20EJ-20	Inspection and Replacement of Engine Control Brackets—B-29
01-20EJ-21	Cabin Leakage Test—B-29 Series
01-20EJ-22	Inspection and Rework of Wing Flap Mechanism Screw Stop Bolts—B-29 Series
01-20EJ-23	Inspection and Replacement of Engine Blower Section Drain Lines—B-29
01-20EJ-26	Rework Governor on the M-H. Turbo Control System—B-29
01-20EJ-27	Inspection of Wing to Body Bolts—YB-29 and B-29
01-20EJ-28*	Mod. of Prop. Feathering System
01-20EJ-29	Rework of Bus Bar in Nose Wheel Inct. Box
01-20EJ-32	Modification of Engine Breather Installation—YB-29, B-29 and B-29A
01-20EJ-32A	Mod. of Engine Breather Installation
01-20EJ-33	Modification of C-1 Autopilot

Part Number	Description
01-20EJ-34	Insp. & Install. of Bomb Bay Defueling & Transfer System
01-20EJ-36	Rewiring of the Emergency Landing Gear System—B-29
01-20EJ-37	Inspection of Sighting Domes
01-20EJ-38	Removal of Pilot's Emerg. Ignition Switch
01-20EJ-39	Rudder Inspection & Replacement
01-20-EJ-40	Replacement of Gen. Control Relay Switch
01-20EJ-41	Install. of Volt. Reg. Stab. Transformers
01-20EJ-42	Install. of Separate Ammeters
01-20EJ-46	Addition of Washers on Elev. Spar
01-20EJ-48	Adj. of Corl Flap Limit Switches
01-20EJ-49	Replacement of Landing Gear Solenoid Wooden Junction Boxes
01-20EJ-52	Inst. Auto. Change Inverter Relay
01-20EJ-53	Removal of Turbo Intake Flange Gaskets
01-20EJ-54	Replacement of Sighting Domes
01-20EJ-55	Removal of Nacelle Door Motor Lower Support Bracket
01-20EJ-56	Fuel Transfer Pump Relay Revision
01-20EJ-57	Mod. of Engine Driven Fuel Pump Install.
01-20EJ-60	Inst. & Use of Emerg. Ignition for A.P.P.
01-20EJ-61	Safetying of Liferaft Doors
01-20EJ-62	Install. of Aileron Control Cable Guard
01-20EJ-63	Rudder Fabric Reinforcement
01-20EJ-64	Modification of Prop. Piston
01-20EJ-65	Life Raft Release Modification
01-20EJ-66	Fuel Quan. Inst. Totalizer
01-20EJ-67	Installation of Short Cowl Flaps
01-20EJ-68	Elev. Hinge Bolt Inspection
01-20EJ-69	Installation of Prop Blade Cuffs



Part Number	Description
01-20EJ-70	Replacement of Hydraulic Pressure Warning and Regulating Switch
01-20EJ-71	Installation of Core Check Valve
01-20EJ-72	Install. of Ball & Socket Joints to Exhaust Collector Ring
01-20EJ-74	Inspection & Repair of Wing Skin
01-20EJ-75	Replacement of Retaining Nut Lock Wire
01-20EJ-76	Replacement of Signal Pistol Discharge Door Spring
01-20EJ-77	Installation of Safety Switches, Nose and Main Landing Gear Circuit
01-20EJ-78	Installation of Elevator Trim Tab Hinge Pin Retainer
01-20EJ-79	Reduction of Governor Maximum RPM Setting
01-20EJ-80	Turbo Antileak Valve
01-20EJ-81	Inst. of Extension Plate on Bomb Door Release Handle Switch Cam
01-20EJ-83	Marking of Surface Lock Control Handle Position
01-20EJ-84	Replacement of Wing Station 510 Bolts
01-20EJ-85	Replacement of Fuel Filler Cap Cups
01-20EJ-87	Nac. Door Tire Clearance Revision
01-20EJ-87A	Nac. Door Tire Clearance Revision
01-20EJ-88	Installation of Life Raft Release Spring Link
01-20EJ-89	Revision of Engine Airseals
01-20EJ-90	Replace Landing Gear Limit Switches
01-20EJ-92	Operation of War Emerg. Power
01-20EJ-93	Replacement of Mounting Screws for Waste Gate Motor

Part Number	Description
01-20EJ-94	Inspection of Wing Station 510 Lower Bolts Foot Switch
01-20EJ-96	Replacement of Chevron Clamp Bolts
01-20EJ-98	Fuel Trans. Flow Lights
01-20EJ-99	Inspection of Horizontal Stabilizer
01-20EJ-100	Installation of Bolts at Fuselage (Stations 383 and 485)
01-20EJ-101	Air Speed Limitation
01-20EJ-102	Installation of Flasher Mechanism
01-20EJ-103	Insp. & Replace. of Prop. Gov. Mounting Gasket
01-20EJ-104	Information on Trapped Fuel
01-20EJ-105	Rev. Engine Starter Circuit
01-20EJ-106	Installation of Life-Raft Release Instruction Decal
01-20EJ-111	Inst. Conduit Seal Main & Nose Gear Safety S.W.
01-20EJ-112	Instal.—Mod. Mag. & Dist.—Superchg. Lines
01-20EJ-114	Replace Mag. J-Box
01-20EJ-115	L.G. Retraction S.W. Oper.
01-20EJ-116	Carb Control Bracket—Spacer Rod Bushings
01-20EJ-117	Limit Sw. & Screw Breakaway Torque Adj.
01-20EJ-118	Mod. of Prop. Gov. Head
01-20EJ-120	Rev. L.G. Manual Operation
01-20EJ-121	Rev. of Aft Center of Gravity Limit
01-20EJ-122	Nac. Power Wire Terminal Insp.
01-20EJ-124	L.G. Fuse Inst.
01-20EJA-8	Inst. of Voltage Reg. Stab. Trans. in A.P.P. Circuit
01-20EJA-9	Inst. of Bombardier Mic. Foot Sw.



Part Number	Description
01-20EJA-12	Rep. Oxygen Swivel Joint under upper Fire Control Seat
01-20EJA-15	Wire Change Pneumatic Bomb Door
02-1-1	Preparation of Engines for Storage
02-1-4	Block, Installation and Flight Tests
02-1-5	Operation of Carburetor Air Heaters and Induction System De-Icers
02-1-6	Periodic Inspection and Adjustment of Valve Mechanisms
02-1-8	Restriction on Removal of Engines
02-1-11	Use of Silk Thread at Parting Surface of Engine Crankcases
02-1-13	Replacement of Allen Type Plugs with Square Head Plugs
02-1-14	Equipment Comprising "Complete Aircraft Engines"
02-1-15	Inspection and Replacement of Engines After Accidents Involving Sudden Stoppage of Propellers
02-1-22	Pre-Oiling of Aircraft Engines
02-1-28	Inspection and Tightening of Intake Pipe Packing Nuts
02-1-29	Ground Operation Instructions for Aircraft Engines
02-1-35	Protection of Propeller Shaft Threads
02-1-38	Use of Alternate Grade Fuel—Aircraft Engines
02-1-42	Overspeeding of Aircraft Engines
02-1-55	Tightening of Cylinder Hold-Down Nuts and Cap Screws
02-1-70	Replacement of Cylinder Hold-Down Studs

Part Number	Description
02-1-71	Indent. & Numbering of Aircraft Engines
02-1-76B	Interchanging of Assys. & Parts (Wright)
02-35-1	Table of Limits (Wright)
02-35-2	Tools Catalog (Wright)
02-35J-7	Mod. of the Ignition System—R-3350 Series
02-35JA-2	Service Inst.—R-3350-13, -21, -23 & -35
02-35JA-3	Overhaul Inst.—R-3350-13, -18, -21, -23, -33, -35
02-35JA-4	Parts Catalogue R-3350-13 & 21 Aircraft Engines
02-35JA-6	Replacement of Oil Pump Driven Gear and Inspection for Proper Meshing
02-35JA-7	Plugging Distrib. Drive Shaft Oil Supply Passage
02-35JA-8	Install. of Drilled Exhaust Rocker Arms & Nichrome Exhaust Valves—R-3350-21, 21-A, -23 & -23A Engines
02-35JA-9	Rework of Valve Tappet & Valve Tappet Guides
02-35JA-10	Ident. of Engine Status—13, -21, -21A, -23 & -23A
02-35JA-11	Pinning of Prop. Shaft Rear Bushings
02-35JA-12	Rework of Rocker Arm Oil Passage & Exhaust Valve Clearance Adjustment Screws
02-35JA-13	Modification of Engine Shipping Box
02-35JA-14	Removal of Valve Tappet Circlets
02-95A-2	Service Instr. Type D-2 Andover Aux. P.P.
02-95A-5	Replacement of Intake Manifolds and D-2
02-95A-6	Replacement of Oil Pump—Type D-2 (Andover)

Part Number	Description
02-95BA-1	Service Instr. Type D-2 Lawrence Aux. P.P.
03-1-1	Periodic Inspec. of Access. in Storage
03-1-2	Safety Belts
03-1-6	Service & Overhaul Instructions—Aircraft Accessory Equipment (Eclipse)
03-1-26	Parker Engineering Data—Tubing, Fittings and Valves
03-1-27	Install. of Adapter on AAF Voltage Reg. Base
03-1-28	Replacement of Plunger Assembly in Oil Dilution Solenoids & Primer Solenoids
03-1-32	Cuno Filters
03-1-46	Index of Army-Navy Aeronautical Equip.—Misc.
03-1-48	Intercooler
03-1-51	Engine Mounting Systems
03-5-2	Handbook of Instr.—Induction Vibrator
03-5-4	Clean. & Polishing Landing Lamp Reflectors
03-5-39	Oper. & Adjust. of Electrical Power System
03-5-43	Service Instructions—Induction Vibrators
03-5-44	Overhaul Instructions—Induction Vibrators VJR B1 Series (American Bosch)
03-5-45	Parts Catalog—Induction Vibrators VJR B1 Series (American Bosch)
03-5-58	Handbook of Instructions—Electrically Retractable Landing Light Assemblies
03-5-60	Aircraft Type—Elec. Switches & Actuators
03-5-67	Replacement of Top Cover Gasket—VJR24B6 Starting Vibrators
03-5-69	Index of Army-Navy Equipment (Electrical)
03-5AB-21	Handbook of Instr.—Carbon Pile Volt. Reg.

Part Number	Description
03-5AB-24	Type 24554 Voltage Regulator Base
03-5AD-10	Handbook of Instr.—Models 3GTR72C1, 3GRR72C1A Reverse Current Relays
03-5AD-18	Type E4 Reverse Current Relays
03-5AD-19	Prelim. Instr. for Differential Gen. Control Relay Switch
03-5AE-2	Handbook of Instr. with Parts Catalog—Carbon Pile Voltage Regulator Type DR-1118401
03-5AG-2	Instructions with Parts Catalog—Model JH-2000—Type R-1 Generator (Jack & Heintz)
03-5B-1	Handbook of Instr.—Aircraft Storage Batteries
03-5B-3	Quick Disconnect on Aircraft Stor. Batteries
03-5CA-13	Handbook of Instr. with Parts Catalog—Electric Starters (Jack & Heintz)
03-5CA-23	Designation of Part Numbers for J&H Starters
03-5CC-13	Handbook of Instr. Model JH10440 Landing Wheel Retracting Motor
03-5CC-14	Handbook of Instr. Model JH216 & JH217 Retracting Motors
03-5CH-2	Handbook of Instr. with Parts Catalog—Model E-1420—Tail Skid Actuator
03-5D-9	Aircraft Mags., Types DF18LN, RN & LN-1
03-5DA-20	Change in Grease Used in Gear Compartment DF18RN, LN-1 Scintilla Magnetos
03-5E-1	Hand. of Instr.—Spark Plugs (Squadron)
03-5E-2	Hand. of Instr.—Spark Plugs (Depots)
03-5E-3	Approved Types of Spar. Plugs for A.A.F. Engines



Part Number	Description
03-5G-6	Oper. & Main. of Fluorescent Lighting
03-5H-5	Hand. of Instr.—Inverter Type MG-149F
03-10-15	Operating Fuel Systems
03-10-47	Change in Fuel Inlet Pressure on Injection Type Carburetors
03-10-50	Inspection for Fuel Leaks—Stromberg & Chandler Evans Press. Type Carburetors
03-10-51	Carburetor Idle Adjustments
03-10BF-1	Hand. of Instr.—Injection Carburetors Model 58 CPB-4
03-10D-6	Service Instructions M-H. Turbo Regulator
03-10DA-1	Oper. & Service Instr. "B" Turbo
03-10DA-24	Running Time for Turbosuperchargers
03-10EC-1	Instructions with Parts Catalog—Engine Driven Fuel Pumps (Thompson)
03-10EC-4	Hand. of Instr.—Aux. Prop. Type—Fuel Booster Pumps
03-10ED-1	Hand. of Instr.—Eng. Driven Fuel Pumps—Types G-6, G-9 and F-10
03-15-17	Oil Regulator
03-20CA-2	Service & Overhaul Instr.—Hydromatic Prop. Governor and Controls
03-20CC-1	Hand. of Instr.—Quick-Feathering Hydromatic Propellers (Hamilton Standard)
03-25A-1	Inspec. & Lub. of Anti-Friction Bearings
03-25B-1	Hand. of Instr—Main Landing Wheels
03-25B-3	Hand. of Instr.—Nose & Tail Wheels
03-25B-9	Handbook of Instructions—Expander Tube Brakes (Hayes)
03-30-4	Identification, Disposition and Use of Hydraulic Packing Rings

Part Number	Description
03-30-26	Handbook of Instr.—Shimmy Dampers
03-30AA-1	Hand. of Instr.—Eng. Driven Vac. Pumps
03-30CA-3	Hand. of Instr.—Motor Driven Hydraulic Pump (Gear Type)
03-35A-3	Anti-Icer Pumps—Propeller
03-35A-7	Anti-Icer Pumps—Weldon
03-35B-8	Main. & Inspec. of De-Icer Shoes
03-50-1	Use of Oxygen and Oxygen Equipment
03-50-9	Safety Precautions for Combat—Oxygen.
03-50-28	Use of Thread Compounds on Oxygen Fittings and Connections
03-50A-8	Handbook of Instructions with Parts Catalog—Type A-12 Demand Oxygen Regulator
03-50A-9	Instr. with Parts Catalog—Type A-13 Portable Oxygen Demand Regulator
03-50B-1	Instr. with Catalog—Type A-10 Revised Oxygen Mask (Acushnet)
03-50B-6	Instr. with Catalog—A-14 Dem. Oxygen Mask
03-50C-1	Charging of Oxy. Cylinders (Equalizer Meth.)
03-50C-3	Low Press. Oxy. Cyl.—Types A-4, D-2, F-1, G-1
03-50D-4	Instr. with Catalog—Oxy. Flow Indicator A-3
03-50D-5	Instr. With Catalog—Oxy. Press. Gage—Type K-1
03-80-1	Instr. with Catalog—Cabin Press. Reg.—Models 1 and 2 (Airesearch)
04-1-7	App'd Combinations of AN & AC811 Type Fit.



Part Number	Description
04-1-10	Replacement of Swaged Type Control Cable Terminals
04-1-13	Use of Self-Locking Nuts
04-1-17	Hose Connections
04-10-1	Inflation & Use of Aircraft Casings & Inner Tubes
04-10-2	Main. & Insp.—Tires, Tubes & Wheel Rims
04-10-12	Prevention & Elimination of Low Out-of-Round Spots in Nylon Casings
04-15-1	Life Rafts,—Use, Maint. & Installation
05-1-1	Inspec., Main., Storage & Shipment of Instruments & Instrument Main. Parts
05-1-17	Range Marking of Aircraft Instruments
05-1-21	Gen. Interchang. of Aircraft Instruments
05-1-31	Type PA-11 10 C.F.M. Air Filters (Purolator)
05-1-34	Type PA-12 Air Filter (Purolator)
05-1-35	10 C.F.M. Air Filter (Skinner)
05-1-67	Index of AN Aeronautical Equipment—Instruments
05-5-4	Hand. of Oper. & Serv. Instr.—Electric Tachometers
05-10-1	Hand. of Instr.—Air Speed Indicators
05-15-2	Hand. of Serv. & Overhaul Instr.—Mag. Type Compasses, B-12- B-16, B-17
05-15-3	Install., Compen. & Swing. of Aircraft Compasses
05-15-16	Oper. & Serv. of Gyro Fluxgate Compass
03-20-2	A-11 Turn & Bank Indicator
05-20-9	Hand. of Instr.—AN5736 Gyro Horizon Indicator (Sperry)
05-20-10	Hand. of Instr.—Directional Gyro (Sperry)

Part Number	Description
05-20-17	Hand. of Instr.—Types C-2 & C-3 Rate of Climb Indicators
05-20-27	Hand. of Instr.—Type C-2 Rate of Cl. Ind.
05-20AB-1	Hand. of Instr.—C-1 Turn & Bank Indicator
05-20GC-2	Hand. of Instr.—AN5736-1 Gyro Horizon Indicator (Jack & Heintz)
05-30-1	Hand. of Serv. & Oper. Instr.—Altimeters (Kollsman)
05-35-34	Air Position Indicator
05-40B-5, 6, 9, 12	Hand. of Instr.—Thermometer Indicator
05-40D-1	Hand. of Instr.—B-11 Thermocouples
05-40D-2	Hand. of Instr.—Thermocouple Thermom. (Lewis)
05-50-1	Hand. of Instr.—Pitot, Static & Pitot-Static Tubes
05-65A-1	Hand. of Instr.—Fuel Level Gauges—Elec. Operated (Liquidometer Corp.)
05-70-2	Hand. of Instr.—Pressure Gauges
05-70-4	Hand. of Instr.—A-1 Press. Transmitters
05-70-6	Cold Weather Oper. of Oil Press. Gauges
05-70B-1	Hand. of Instr.—Type AN5772-2 Dual Oil Pressure Gauges
05-70E-2	Hand. of Instr.—Type AN5772-1 Fuel Pressure Gauge
05-80-1	Suction Gages
06-1-2	Fluids for Hydraulic Equipment
06-5-1	Use and Disposition—Fuels
06-5-3	Aircraft Fuel Volume Correction Table
06-10-1	Aircraft Eng. Lubricating Oils—Grades & Use
06-10-3	Prevention of Thread Seizures
06-10-4	General Aircraft Use—Lubricants

Part Number	Description
07-1-1	Aircraft Camouflage—Markings and Insignia
08-5-1	Shielding and Bonding of Aircraft
08-5-2	Install. Oper., Maint. & Inspec.—Radio
11-1-28	Cleaning, Lubrication and Maintenance of .30 and .50 Caliber Aircraft Machine Guns
11-60AA-1	Hand. of Oper. & Instr.—C-1 Auto. Pilot
11-70A-1	Central Fire Control System G.E.
23-1-2	Sheet Metal—Protection of Bright Surfaces
23-1-4	Method. of Ident. in Storage—Metals, Com- position Materials
23-20-1	Handbook of Instructions for Installation, Maintenance and Repair of Plastic Sheets
29-1-1	Selection of Air Valve Cores
29-1-3	Cleaning, Inspection and Lubrication of Anti-Friction Bearings

