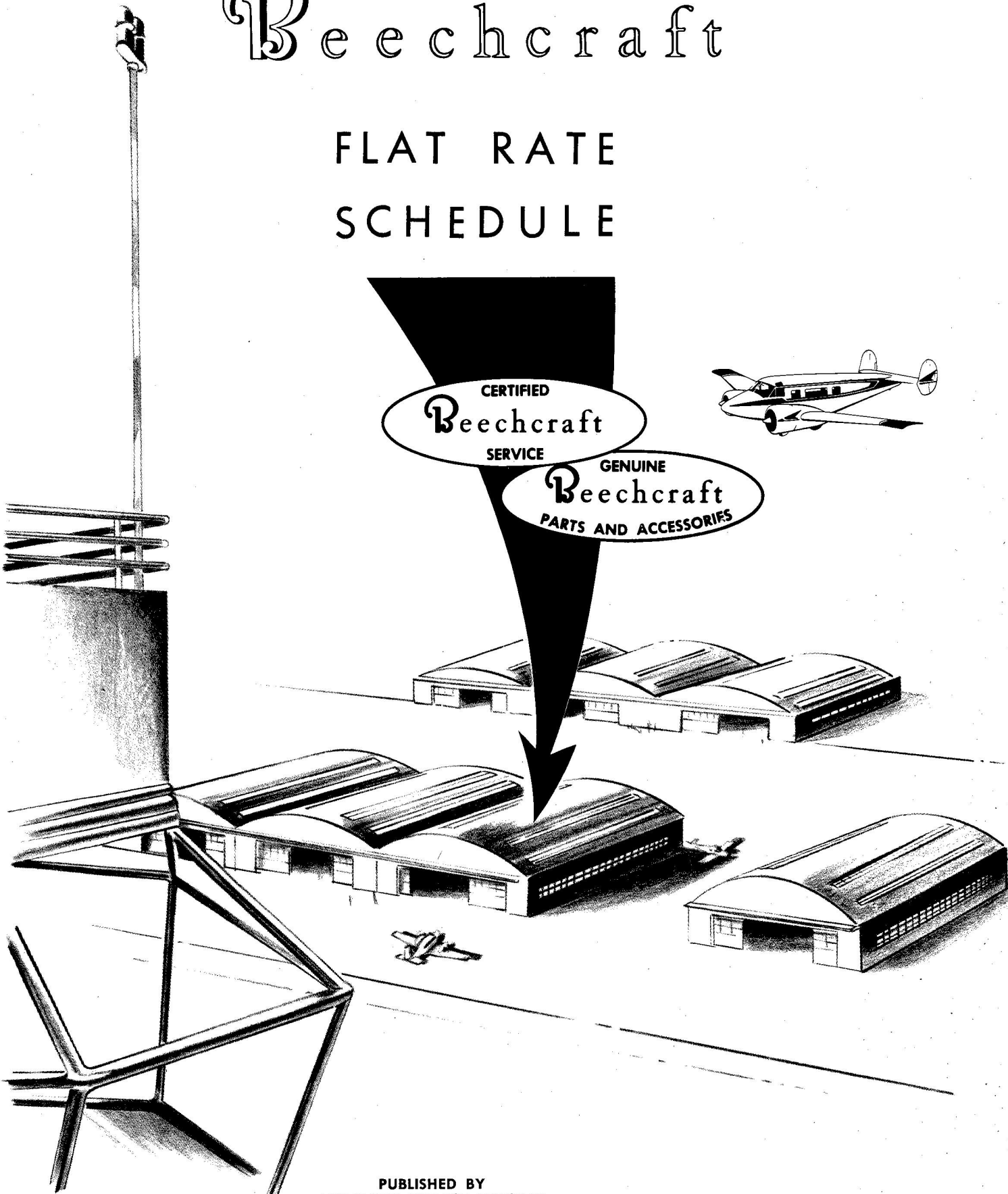
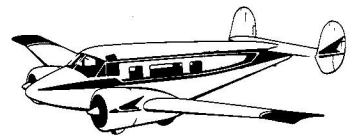


# Beechcraft

## FLAT RATE SCHEDULE

CERTIFIED  
**Beechcraft**  
SERVICE

GENUINE  
**Beechcraft**  
PARTS AND ACCESSORIES



118537 B

PUBLISHED BY  
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WICHITA, KANSAS

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## *Flat Rate Schedule*

### *Introduction*

This Section is offered as a guide to help you accomplish three important functions, namely to:

1. Inform you of the usual amount of time required to perform certain repetitive operations on BEEHCRAFTS so you may better schedule your shop load.
2. Provide you with a means by which you can compare your shop performance with that of other BEEHCRAFT Service Stations.
3. Furnish you with operation times suitable for flat rating labor charges to the customer.

The operation time allowances presented here are not the times required to accomplish this work at the factory, nor are they figures derived from the performance of "best men". These figures are based on an actual national average of BEEHCRAFT Certified Service Stations using men with average ability and effort. You can no doubt reduce these figures in many instances with experience. For this reason, an explanation of the industry experience curve is given in Part Three to aid you in estimating the man hours required for certain types of work.

### OPERATION GROUPS

Operations are grouped under the following headings for each Model to assist you in locating a specific item:

- I. Power Plant Group
- II. Fuselage Group
- III. Landing Gear Group
- IV. Wing Group
- V. Flight Control Group
- VI. Normal Service Operations
- VII. Kits and Accessories

Each operation listed in Part One of this section is described under the same operation key number in Part Two. The Part Two description is primarily the nature of the job and the scope of the work involved under the operation key number in the time schedule and is not intended to be used as instructions for accomplishing the job. The operation key numbers divide into three parts. The prefix represents the model concerned (18, 33, 35, 50, 55, 65 or 95); the middle number represents one of the seven Operation Groups as listed above; the third number represents the item under the Operation Group. For example, operation number 18-4-1 represents item 1 under Operation Group IV, Wing Group, for the Model 18.

WESTERN CANADA  
AVIATION MUSEUM  
INC. 1974

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JIM KNIGHT 76/19

## INSTRUCTIONS

The operation performed, optimum crew size, and total man hours in hours and tenths of hours are given. A space is provided for listing your time averages for comparison and to provide a record for future revisions to this manual. Space is also available for adding additional operations.

The name of the operation is intended to briefly outline the work to be performed; the remarks column for a brief explanation when deemed necessary. Greater detail is shown in Part Two, which describes not only the actual operation, but gives a listing of items to be removed and/or replaced in order to accomplish the end item as well as other pertinent information.

The meaning of the terms and abbreviations are:

Overhaul - To disassemble and assemble inspect all parts, and rebuild it with the same or new parts.

Install - To make the first installation of a part, an accessory or optional equipment.

Recover - To remove old fabric, recover with new, dope and finish.

Remove and Replace (R & R) - To take off a part, put the same or new part back on the airplane, and make all necessary adjustments.

## RELATED OPERATIONS

Additional service work which may be accomplished with a substantial saving of time if performed along with the major operation listed.

## CHANGES

If you desire to suggest a change in the time of an operation, or believe the inclusion of an additional operation would be advisable in the next edition, please forward this information on a sheet similar to the sample shop experience form shown on page 73

## PRICES

The labor computation table and instructions in Part Three will aid you in pricing operations on a basis suitable to your own particular requirements.

\* Denotes Estimated Man-Hours.

*Part I*

*Service Operations*



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>I. POWER PLANT GROUP, MODEL 18</b>					
<b>ENGINES</b>					
18-1-1	100 Hour Inspection	Engine Only		20.0	23
18-1-2	Engine, Change	Repairs Not Included	2	61.0	75
18-1-3	Major Engine Overhaul	Time Not Available			
18-1-4	R985, Top Overhaul		2	54.0	7
<b>ACCESSORIES</b>					
18-1-5	Carburetor, R & R		1	3.0	10
18-1-6	Starter, R & R		1	2.0	3.5
18-1-7	Generator, R & R	100 Amp	1	2.5	
18-1-7	Generator, R & R	50 Amp	1	1.5	
<b>PROPELLERS</b>					
18-1-8	Propeller, R & R		1	3.0	
	Related Operations:				
18-1-9	Hamilton Hydromatic, O/H	Includes Balancing	2	15.8	
18-1-9	Hamilton 2B30, Overhaul	Includes Balancing	1	9.5	
18-1-10	Hamilton Hydromatic, De-sludge		2	3.6	
<b>II. FUSELAGE GROUP</b>					
<b>III. LANDING GEAR GROUP</b>					
18-3-1	100 Hour Inspection	Landing Gear Only		7.0	12
<b>BRAKES AND TIRES</b>					
18-3-2	Reline Brakes	Both Wheels	2	5.5	
18-3-3	Parking Brake Valves Seals, R & R	R & R of Valve Included	1	3.0	
18-3-4	Tire, R & R	Tube Tire	2	2.5	
18-3-5	Tail Wheel Tire, R & R		1	1.5	
<b>MOTOR AND STRUTS</b>					
18-3-6	Landing Gear Motor, R & R		1	1.2	
18-3-7	Landing Gear Motor Overhaul		1	7.0	
18-3-8	Gear Box, Overhaul	Includes R & R	1	12.0	
18-3-9	Tail Strut Overhaul			3.0	
18-3-10	Tail Strut Seals, R & R		1	3.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>III. LANDING GEAR GROUP (Continued)</b>					
18-3-11	Main Strut Overhaul			19.0	
18-3-9	Landing Gear Door Hinge, R & R	R & R Included	2	2.0	
<b>IV. WING GROUP</b>					
<b>DEICER BOOTS</b>					
18-4-1	Deicer Boots, R & R All	D18	4	60.0	
18-4-1	Deicer Boots, R & R All	E18	4	63.0	
18-4-2	Deicer Boot, Stabilizer, R & R	E18	2	10.0	
18-4-2	Deicer Boot, Stabilizer, R & R	D18	2	10.0	
18-4-3	Deicer Boots, Wing, R & R	E18 (Both Boots)	2	21.5	
18-4-3	Deicer Boot, Wing, R & R	E18 (One Boot)	2	12.0	
18-4-3	Deicer Boot, Wing, R & R	D18	2	20.0	
<b>V. FLIGHT CONTROL GROUP</b>					
18-5-1	Flap Motor, R & R		1	1.5	
18-5-2	Flap Gear Box, R & R	Includes Motor R & R	1	2.0	
18-5-3	Flap Gear Box Overhaul			8.0	
18-5-4	Aileron Control Arm Bearings, R & R	Both Sides	1	3.8	
18-5-5	Elevator Trim Tab 90° Drives and Universal		2	5.0	
18-5-6	Control Surfaces, R & R	All Surfaces, Includes Rigging & Flight Check	2	16.0	
18-5-7	Aileron, recover	R & R Not Included	1	13.0	
18-5-7	Rudder, Recover	R & R Not Included	1	17.6	
18-5-7	Flap, Recover	R & R Not Included	1	32.0	
18-5-7	Elevator, Recover	R & R Not Included	1	35.0	
<b>VI. NORMAL SERVICE OPERATIONS</b>					
18-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	6.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
MISCELLANEOUS (Continued)					
18-6-2	Oil Change and Engine Wash	Both Engines	2	5.0	6
18-6-3	50 hour Inspection	Drain Oil, Clean Screens, Visual Inspection	2	18.0	23
18-6-4	100 hour Inspection	Beech Form-Repairs Not Included	4	48.0	53
VII. KITS AND ACCESSORIES					
KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.					
18-7-1	Kit E18-3 Sealing Nose Radio Compartment Cover		1	10.0*	
18-7-2	Kit E18-7 Installation of Heat Exchangers in Carburetor Heat Muffs		2	25.0*	
18-7-3	Kit E18-9 Installation of Improved Battery Box		1	1.0 Std. 2.5 Opt.	
18-7-4	Kit E18-10 Inspection of Horizontal Stabilizer Attach. Fittings		2	8.0	
18-7-5	Kit C18-11 Drag Leg for and AT-11		2	30.0*	
18-7-6	Kit E18-13 Replacement of Static Pressure System Tubes in Aft Fuselage		2	3.0*	
18-7-7	Kit D18-22 Belly Inspection Door		1	4.0*	
18-7-8	Kit E18-24 Modification of De-icer Plumbing		2	32.0	
18-7-9	Kit E18-310 Three Minute Flare Installation		4	50.0	
18-7-10	Kit E18-324 Modification of E18S Nose Radio Compartment		3	14.0*	
18-7-11	Kit E18-329 Modification of Cigarette Lighter Circuit		1	4.0*	
18-7-12	Kit E18-333 Geisse Safety Gear Installation		2	16.0*	
18-7-13	Kit E18-334 Additional Battery Installation		2	20.0*	
18-7-14	Kit E18-335 Field Repair if E18 Metal Covered Flap		2	16.0* per flap	
18-7-15	Kit E18-336 E18 Radio Compartment Cover Assy.		2	8.0*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
18-7-16	Kit 505 Windshield Wiper Installation		2	31.2	
18-7-17	Kit 528 Nose Taxi Light		2	12.0	
18-7-18	Kit 535-1 Basic C45 Certification		5	290.0*	
18-7-19	Kit 539 Carburetor Mixer Valve D18S & E18S		2	80.0*	
18-7-20	Kit 540 Sixty Gallon Aux. Tanks LH & RH		4	500.0*	
18-7-21	Kit 541 Basic Modernization		5	600.0*	
18-7-22	Kit 541-1 Basic Modernization		5	700.0*	
18-7-23	Kit 541-2 Basic Modernization		5	550.0*	
18-7-24	Kit 541-3 Basic Modernization		5	650.0*	
18-7-25	Kit 542 Improved Cowl Support Brackets		2	4.0*	
18-7-26	Kit 543 Combustion Heater		4	380.0*	
18-7-27	Kit 544 Dual Combustion Heater		4	160.0*	
18-7-28	Kit 544-2 Improved Change to Kit 544		2	8.0*	
18-7-29	Kit 544-2A Improved Change to Kit 544		2	16.0*	
18-7-30	Kit 545 E18S Jet Stack Installation		3	160.0*	
18-7-31	Kit 546 Stabilizer Angle of Incidence		2	85.0*	
18-7-32	Kit 547 Improved Landing Gear Doors		2	48.0*	
18-7-33	Kit 548 Fuel Flowmeter Installation		2	50.0*	
18-7-34	Kit 549 Extended Wing Tips		2	32.0*	
18-7-35	Kit 550 Leading Edge Landing and Taxi Lights		2	30.0*	
18-7-36	Kit 552 Improved Oil Radiator Cooling Valve		1	2.0*	
18-7-37	Kit 557 Rudder Return Spring		2	2.0*	



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
18-7-38	Kit 558 Extended Tail Wheel		3	50.0*	
18-7-39	Kit 561-1 Propeller Installation, Three-Bladed		4	50.0*	
18-7-40	Kit 561-2 Propeller Installation, Three-Bladed		4	43.0*	
18-7-41	Kit 561-3 Propeller Installation, Three-Bladed		4	80.0*	
18-7-42	Kit 562 Improved Cabin Window Sealing Material		1	4.5*	
18-7-43	Kit 563 Cockpit Sliding Window Drain Channel		2	16.0*	
18-7-44	Kit 564 Improved Method for Windshield Installation		1	7.5*	
18-7-45	Kit 565-1 Jato Installation		2	90.0*	
18-7-46	Kit 565-2 & Kit 565-3 Jato Installation		2	100.0*	
18-7-47	Kit 566 E18 Larger Rudder Cable Pulleys at Bulkhead 13 Installation		2	40.0*	
18-7-48	Kit 18-567 Ice Free Crankcase Breather Vent System Improvement		1	9.0*	
18-7-49	Kit 568-1 Cockpit Utility Light Installation		1	3.0*	
18-7-50	Kit 568-2 Cockpit Utility Light Installation		1	3.0*	
18-7-51	Kit 569 Second Heater Fuel Pump Installation		1	6.0*	
18-7-52	Kit 570-1 Nickel Cadmium Battery		1	4.0*	
18-7-53	Kit 570-3 Nickel Cadmium Battery		2	22.0*	
18-7-54	Kit 571 Model E18S Conversion to Model E18S-9700		1	22.0*	
18-7-55	Kit 572 Six Gallon Anti-Icer Supply Tank Installation		2	40.0*	
18-7-56	Kit 575 Heated Outboard Fuel Cell Vent		2	7.0*	
18-7-57	Kit 576 or Kit 577 Airheart Automatic Brake Release Units		1	6.0*	
18-7-58	Kit 578 Emergency Static Source Installation		2	7.0*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
18-7-59	Kit 579 100 Amp Generator		3	90.0*	
18-7-60	Kit 583 & Kit 583-1 Heated Tank Vent		2	10.0*	
18-7-61	Kit 586 Vertical Fin De-icer Boots		2	25.0*	
18-7-62	Kit 587 Wing Ice Light		2	16.0*	
18-7-63	Kit 588 Carburetor Mixer Valve Anti-icer		2	16.0*	
18-7-64	Kit 589 Adjustable Rudder Pedals		2	12.0*	
18-7-65	Kit 5000A D18S Double Cabin Windows		1	10.0	
ACCESSORIES					
18-7-66	D18S De-icers	Initial Installation	4	228.0	
18-7-67	D18S Dual Pitot Mast		2	13.0	
18-7-68	Grimes Rotating Beacon		2	15.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>I. POWER PLANT GROUP, MODEL 33</b>					
<b>ENGINES</b>					
33-1-1	Engine, Change	Repairs Not Included	2	27.0	M
33-1-2	IO-470-J Major Overhaul		2	98.0	
33-1-3	IO-470-J Top Overhaul		2	40.0	
33-1-4	Exhaust Gaskets, R & R	One Side Only	1	.7	
33-1-5	Push Rod Seals, R & R	Per Cylinder	1	1.0	
33-1-6	Intake Seals, R & R	Per Cylinder	1	.4	
33-1-7	Engine Mounts R & R		1	6.0	
33-1-8	Ignition Harness Lead, R & R		1	1.2	
33-1-9	100 Hour Inspection	Engine Only		4.0	
<b>ACCESSORIES</b>					
33-1-10	Starter Solenoid, R & R		1	.6	
33-1-11	Magneto, R & R		1	1.5	
33-1-12	Points & Condensor, R & R	One Magneto	1	2.0	
33-1-13	Fuel Pump, R & R		1	2.5	
<b>PROPELLERS</b>					
33-1-14	Propeller, R & R		1	2.0	
33-1-15	Propeller Overhaul (500 Hr.)	Includes Balancing	1	11.8	
33-1-16	Propeller, Inspection (250 Hr.)	Lubricate Pitch Change Bearing	1	2.8	
<b>II. FUSELAGE GROUP</b>					
33-2-1	Cabin Door Release, R & R		1	20.5	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>II. FUSELAGE GROUP (Continued)</b>					
33-2-2	Cabin Door Seal, R & R		1	1.0	
33-2-3	Cabin Door Lock, R & R		1	1.0	
33-2-4	Baggage Door Lock, R & R		1	.5	
33-2-5	Windshield, R & R	Each	2	14.0	
33-2-6	Window, Storm, R & R		1	3.0	
33-2-7	Window, Forward, LH, R & R		1	12.0	
33-2-8	Window, Door, R & R		1	12.0	
33-2-9	Window, Aft, R & R		1	8.0	
33-2-10	100 Hour Inspection	Airframe		8.0	
<b>III. LANDING GEAR GROUP</b>					
33-3-1	100 Hour Inspection	Landing Gear Only		7.0	
<b>BRAKES AND TIRES</b>					
33-3-2	Bleed Brakes		1	1.0	
33-3-3	Reline Brakes	Both Wheels	1	1.4	
33-3-4	Wheel Brake Cyl. Seals, R & R	Each Wheel	1	1.2	
33-3-5	Brake Master Cyl., R & R		1	1.5	
33-3-6	Brake Master Cyl., Overhaul		1	4.0	
33-3-7	Tire, R & R		1	1.0	
<b>MOTOR AND STRUTS</b>					
33-3-8	Landing Gear Motor, R & R		1	2.8	
33-3-9	Main Gear Strut, R & R	Rigging & Bleeding Included	1	3.0	
33-3-10	Main Gear Strut, Overhaul		1	8.5	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>MOTOR AND STRUTS (Continued)</b>					
33-3-11	Nose Gear Strut, R & R	Rigging Included	1	2.5	
33-3-12	Nose Gear Strut, Overhaul		1	6.0	
33-3-13	Landing Gear Actuator, O/H	R & R Included	1	11.5	
33-3-14	Safety Switch Boot, R & R		1	.5	
33-3-15	Shimmy Dampener, Service	R & R Included	1	1.0	
<b>IV. WING GROUP</b>					
<b>V. FLIGHT CONTROL GROUP</b>					
33-5-1	Flap Motor, R & R		1	2.0	
33-5-2	Flap Actuator, Overhaul	Includes R & R	1	4.0	
<b>VI. NORMAL SERVICE OPERATIONS</b>					
33-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	2.2	
33-6-2	50 hr. Inspection	Drain Oil, Clean Screens, Visual Inspection	1	7.0	
33-6-3	100 hr. Inspection	Beech Form - Repairs Not Included	2	15.0	
33-6-4	Paint Job	Labor Only		117.0	
<b>VII. KITS AND ACCESSORIES</b>					
33-7-1	Kit 33-1 50 Amp Generator Installation		1	2.0*	
33-7-2	Kit 33-2 50 Amp Generator Installation		1	3.0*	
33-7-3	Kit 33-3 Glove Box Installation		1	1.0*	
33-7-4	Kit 33-4 Debonair Utility Kit		1	2.5*	
(*Denotes Estimated Man-Hours)					

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KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS AND ACCESSORIES (Continued)					
33-7-5	Kit 33-5 Fresh Air Ventilation System		2	8.0*	
33-7-6	Kit 33-8 Vacuum System Installation		1	5.0*	
33-7-7	Kit 33-9 RH Rudder Pedals Installation		1	4.0*	
33-7-8	Kit 33-10 Gyro Installation (Horizon & Direction)		1	2.5*	
33-7-9	Kit 33-12 Engine Compartment Cowl Gill Rework		1	1.0*	
33-7-10	Kit 35-646-1 Third Window Installation		2	16.0*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
I. POWER PLANT GROUP, MODEL 35					
ENGINES					
35-1-1	Engine, Change	Repairs Not Included	2	27.0	33
35-1-2	E185, Major Overhaul		2	96.0	
35-1-2	E225, Major Overhaul		2	96.0	
35-1-2	O-470, Major Overhaul		2	98.0	
35-1-3	E185, Top Overhaul		2	32.0	
35-1-3	E225, Top Overhaul		2	33.0	
35-1-3	O-470, Top Overhaul		2	40.0	
35-1-4	Exhaust Gaskets, R & R	One Side Only	1	.7	
35-1-5	Push Rod Seals, R & R	Per Cylinder	1	1.0	
35-1-6	Intake Seals, R & R	Per Cylinder	1	.4	
35-1-7	Lord Engine Mounts, R & R		1	6.0	
35-1-8	Ignition Harness Lead, R & R		1	1.2	
35-1-9	100 Hour Inspection	Engine Only		4.0	
ACCESSORIES					
35-1-10	Carburetor, R & R		1	4.0	
35-1-11	Starter Solenoid, R & R		1	.6	
35-1-12	Magneto, R & R		1	1.5	
35-1-13	Points & Condensor, R & R	One Magneto	1	2.0	
35-1-14	Fuel Pump, R & R		1	2.5	
PROPELLERS					
35-1-15	Propeller, R & R		1	2.0	
35-1-16	R200, B200, 215, Overhaul (500 hr.)	Includes Balancing	1	11.8	
35-1-17	R200, B200, 215, 250 Hr. Inspection	Lubricate Pitch Change Bearing	1	2.8	
35-1-18	Motor, Propeller, Overhaul	Includes R & R	1	2.5	
II. FUSELAGE GROUP					
35-2-1	Cabin Door Release, R & R		1	20.5	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>II. FUSELAGE GROUP (Continued)</b>					
35-2-2	Cabin Door Seal, R & R		1	1.0	
35-2-3	Cabin Door Lock, R & R		1	1.0	
35-2-4	Baggage Door Lock, R & R		1	.5	
35-2-5	Windshield, R & R	Each	2	14.0	
35-2-6	Window, Storm, R & R		1	3.0	
35-2-7	Window, Forward, LH, R & R		1	12.0	
35-2-8	Window, Door, R & R		1	12.0	
35-2-9	Window, Aft, R & R		1	8.0	
35-2-10	100 Hour Inspection	Airframe		8.0	
<b>III. LANDING GEAR GROUP</b>					
35-3-1	100 Hour Inspection	Landing Gear Only		7.0	
<b>BRAKES AND TIRES</b>					
35-3-2	Bleed Brakes		1	1.0	
35-3-3	Reline Brakes	Both Wheels	1	1.4	
35-3-4	Wheel Brake Cyl. Seals, R & R	Each Wheel	1	1.2	
35-3-5	Brake Master Cyl., R & R		1	1.5	
35-3-6	Brake Master Cyl., Overhaul		1	4.0	
35-3-7	Exchange Wheels and Brakes from Firestone to Goodyear	Includes Bleeding	2	5.5	
35-3-8	Tire, R & R		1	1.0	
<b>MOTOR AND STRUTS</b>					
35-3-9	Landing Gear Motor, R & R		1	2.8	
35-3-10	Main Gear Strut, R & R	Rigging & Bleeding Included	1	3.0	
35-3-11	Main Gear Strut, Overhaul		1	8.5	
35-3-12	Nose Gear Strut, R & R	Rigging Included	1	2.5	
35-3-13	Nose Gear Strut, Overhaul		1	6.0	
35-3-14	Landing Gear Actuator, O/H	R & R Included	1	11.5	
35-3-15	Safety Switch Boot, R & R		1	.5	



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
35-3-16	Shimmy Dampener, Service	R & R Included	1	1.0	
IV. WING GROUP					
V. FLIGHT CONTROL GROUP					
35-5-1	Flap Motor, R & R		1	2.0	
35-5-2	Flap Actuator, Overhaul	Includes R & R	1	4.0	
VI. NORMAL SERVICE OPERATIONS					
35-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	2.2	
35-6-2	50 Hour Inspection	Drain Oil, Clean Screens, Visual Inspection	1	7.0	
35-6-3	100 Hour Inspection	Beech Form - Repairs Not Included	2	15.0	
35-6-4	Paint Job	Labor Only		117.0	
VII. KITS AND ACCESSORIES					
KITS NOTE: Kit installation procedure is detailed in appropriate Service Publication and on kit drawing.					
35-7-1	Kit 35-502 Parachute Flares Installation		2	9.2	
35-7-2	Kit 35-528 Primer Installation		1	8.5	
35-7-3	Kit 35-544 Nose Gear Steering		2	34.0	
35-7-4	Kit 35-548C Auxiliary Fuel Pump Installation		2	20.7	
35-7-5	Kit 35-549 External Power Source		1	7.8	
35-7-6	Kit 35-552A Air Conditioner Installation		1	16.7	
35-7-7	Kit 35-556 Electrically Heated Pitot Tube		1	6.6	
35-7-8	Kit 35-564 180 Degree Door Hinge Installation		1	20.2	
35-7-9	Kit 35-565 Position Light Flasher Installation		2	3.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
35-7-10	Kit 35-567 Arm Rest Installation		1	6.0	
35-7-11	Kit 35-576 New Style Fuel Pump Installation		1	10.5	
35-7-12	Kit 35-580 Shoulder Harness Installation		1	15.0	
35-7-13	Kit 35-584 Cabin Door Latch and Safety Handle		1	12.5	
35-7-14	Kit 35-598 Auxiliary Fuel Tank (Baggage Compartment)		2	27.7	
35-7-15	Kit 35-603 Landing Gear Door Modification		1	4.0	
35-7-16	Kit 35-613 Rotating Beacon		2	13.5	
35-7-17	Kit 35-614 Curtains Four Windows		1	6.0	
35-7-18	Kit 35-614 Curtains Six Windows		1	8.0	
35-7-19	Kit 35-630 & 35-630A Propeller Counterweight Installation		1	10.0*	
35-7-20	Kit 35-645 Lower Rotating Beacon		2	10.0*	
35-7-21	Kit 35-647 Elimination of Ignition Harness Chafing		1	1.0*	
35-7-22	Kit 35-648 Engine Conversion to Fuel Injection		1	50.0*	
35-7-23	Kit 35-650 Chafe Preventing Bungee Pulley Bracket Installation		1	3.0*	
35-7-24	Kit 35-653 Installation of Modified Upper Cabin Door Latch		1	2.5*	
35-7-25	Kit 35-659-1 Heated Fuel Cell Vents		1	4.0	
35-7-26	Kit 35-659-2 Heated Fuel Cell Vents		1	3.0	
35-7-27	Kit 110A Airheart Automatic Brake Release Units		1	1.5*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
ACCESSORIES					
35-7-28	Flight Research Governor		1	25.2	
35-7-29	Lear ARCON Automatic Rudder Control		2	35.0	
35-7-30	Scott Oxygen Console and Kit (Console on Side Panel)		1	25.0	
35-7-31	Scott Oxygen Console and Kit (Console Overhead)		1	30.0	



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>I. POWER PLANT GROUP, MODEL 50</b>					
<b>ENGINES</b>					
50-1-1	Engine, Change Related Operations:	Repairs Not Included	2	47.0	52
50-1-2	GO-435, Major Overhaul		2	160.0	
50-1-2	GO-480, Major Overhaul		2	160.0	
50-1-2	GSO-480, Major Overhaul		2	172.0	
50-1-2	IGSO-480, Major Overhaul		2	170.0	
50-1-3	GO-435, Top Overhaul		2	43.0	
50-1-3	GO-480, Top Overhaul		2	43.0	
50-1-3	GSO-480, Top Overhaul		2	43.0	
50-1-3	IGSO-480, Top Overhaul		2	43.0	
50-1-4	100 Hour Inspection	Engine Only	1	11.0	
<b>ACCESSORIES</b>					
50-1-5	Starter, R & R			2.0	
50-1-6	Starter Solenoid, R & R		1	.6	
50-1-7	Carburetor, R & R			3.0	
50-1-8	Generator, R & R	50 amp		3.0	
<b>PROPELLERS</b>					
50-1-9	272, 279, Overhaul	Includes Balancing	1	12.5	
50-1-9	Hartzell, Overhaul	Includes Balancing	1	16.3	
<b>II. FUSELAGE GROUP</b>					
50-2-1	100 Hour Inspection	Airframe Only	1	25.0	
50-2-2	Center Windshield, R & R		2	6.7	
50-2-3	Right or Left Windshield, R & R		2	14.0	
50-2-4	Storm Window, R & R		1	3.0	
50-2-5	Forward Left Hand Window		1	12.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>II. FUSELAGE GROUP (Continued)</b>					
50-2-6	Aft Left Hand Window		1	8.0	
50-2-7	Aft Right Hand Window		1	8.0	
50-2-8	Door Window, R & R		1	3.7	
50-2-9	Reseal Cabin Door		1	1.0	
50-2-10	Cabin Door Lock, R & R		1	1.0	
50-2-11	Paint Job	Labor Only		200.0	
<b>III. LANDING GEAR GROUP</b>					
50-3-1	100 Hour Inspection	Landing Gear Only		7.0	
<b>BRAKES AND TIRES</b>					
50-3-2	Bleed Brakes			1.0	
50-3-3	Reline Brakes	Both Wheels	2	5.5 ✓	
50-3-4	Reseal Wheel Brake Cylinder			1.0	
50-3-5	Landing Gear Motor, R & R		1	2.0	
50-3-6	Overhaul Brake Master Cyl.			4.0	
50-3-7	Main Gear Strut, R & R	Rigging & Bleeding Included	1	4.0	
50-3-8	Main Gear Strut Overhaul		1	8.5	
50-3-9	Tires, R & R		1	1.5	
50-3-10	Nose Gear Strut, R & R		1	3.5	
50-3-11	Nose Gear Strut Overhaul			8.5	
50-3-12	Shimmy Dampener, Service	R & R Included		2.0	
<b>IV. WING GROUP</b>					
<b>V. FLIGHT CONTROL GROUP</b>					
50-5-1	Flap Motor, R & R		1	2.5	
50-5-2	Flap Actuator, Overhaul	Includes R & R	1	4.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>VI. NORMAL SERVICE OPERATIONS</b>					
50-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	6.0	
50-6-2	50 Hour Inspection	Drain Oil, Clean Screens, Visual Inspection	2	18.0	
50-6-3	100 Hour Inspection	Beech Form - Repairs Not Included	4	33.0	
<b>VII. KITS AND ACCESSORIES</b>					
KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing					
50-7-1	Kit 50-117 Nose Taxi Light Installation		2	7.0	
50-7-2	Kit 50-120 Air Conditioner Installation		1	12.5	
50-7-3	Kit 50-155 Carburetor Heat Kit		1	10.0*	
50-7-4	Kit 50-156 Rotating Beacon Installation		2	14.5	
50-7-5	Kit 50-171 Installation of Automatic Alternate Air Doors on Carburetor Air Intake Duct		1	4.0*	
50-7-6	Kit 50-176 Relocation of Oxygen Bottle to Rear Baggage Compartment Bulkhead		1	10.0*	
50-7-7	Kit 50-176-1 Relocation of Oxygen Bottle to Rear Baggage Compartment Bulkhead		1	10.0*	
50-7-8	Kit 50-177 Hartzell Propeller Unfeathering Accumulator		1	8.0*	
50-7-9	Kit 50-177A Model D50 Propeller Unfeathering Accumulator		1	14.0*	
50-7-10	Kit 50-178 High Altitude Efficiency Improvement, Heater Ignition Coil		1	6.0*	
50-7-11	Kit 50-179 Reference F50 Service Letter No. 7		1	3.5*	
50-7-12	Kit 50-181 Step Slide Felt Pad Installation		1	6.0*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
50-7-13	Kit 50-181A Step Motor Access Door Installation		1	7.0*	
50-7-14	Kit 50-182 Improved Breather System, Which is Less Susceptible to Icing. Ref. Service Bulletin G50 No. 3		1	8.0*	
50-7-15	Kit 50-182-1 Reference Service Bulletin 65 No. 3		1	6.0*	
50-7-16	Kit 50-182-2 Reference Service Bulletin G50 No. 3		1	6.0*	
50-7-17	Kit 50-182-3 Ref. Service Bulletin G50 No. 3		1	6.0*	
50-7-18	Kit 50-182-4 Ref. Service Bulletin G50 No. 3		1	6.0*	
50-7-19	Kit 50-182-5 Ref. Service Bulletin G50 No. 3		1	6.0*	
50-7-20	Kit 50-183 Carburetor Heat Muff, Induction Heater Valve, and Alternate Air Door		2	20.0*	
50-7-21	Kit 50-184 Reference E50 Service Letter No. 17		1	7.0*	
50-7-22	Kit 50-184A Reference E50 Service Letter No. 17		1	5.0*	
50-7-23	Kit 50-186 Installation of Lower Rotating Beacon on Model 50 Aircraft		1	8.0*	
50-7-24	Kit 50-187 Jato Installation Kit		2	85.0	
50-7-25	Kit 50-189 Installation of Dual Brake Controls on all Model 50 Series Airplanes Not So Equipped		1	12.0*	
50-7-26	Kit 50-190 Installation of Sonotone Nickel Cadmium Battery in the Field		1	3.0*	
50-7-27	Kit 50-192 Heated Fuel Cell Vents		2	10.0*	
50-7-28	Kit 50-192-2 Heated Fuel Cell Vents		2	8.0*	
50-7-29	Kit 50-200 G36A47 Cabin Heater Fuel Nozzle Installation		1	5.0*	



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
50-7-30	Kit D6761-1-3 Installation of a 3 ampere Step Motor and Cigarette Lighter Circuit Breaker - G50 Service Bulletin No. 2		1	1.0*	
50-7-31	Kit PSM-3 Reference G50 Service Bulletin No. 2		1	1.0*	
50-7-32	Kit 100 Airheart Automatic Brake Release Units		1	4.0*	
50-7-33	Kit 35-653 Upper Cabin Door Latch Installation		1	2.5*	
ACCESSORIES					
50-7-34	Scott Oxygen Console and Kit Installation		1	25.0	
50-7-35	Safe-Flight Speed Control Installation		3	49.0	
(*Denotes Estimated Man-Hours)					



KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
I. POWER PLANT GROUP, MODEL 55					
ENGINES					
55-1-1	Engine, Change	Repairs not included	2	31.0	35.
ACCESSORIES					
PROPELLERS					
55-1-2	Propeller Overhaul		1	12.5	
II. FUSELAGE GROUP					
55-2-1	Cabin Door Release, R & R	Each	1	20.5	
55-2-2	Cabin Door Lock, R & R			1.0	
55-2-3	Cabin Door Seal, R & R		1	1.0	
55-2-4	Windshield, R & R		2	10.0	
55-2-5	Window, Storm R & R		1	3.0	
55-2-6	Window, Forward, LH, R & R		1	12.0	
55-2-7	Window, Door, R & R		1	12.0	
55-2-8	Window, Aft, R & R		1	8.0	
III. LANDING GEAR GROUP					
55-3-1	Inspection	Landing Gear Only		7.0	8.
BRAKES AND TIRES					
55-3-2	Bleed Brakes		1	1.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>BRAKES &amp; TIRES (Continued)</b>					
55-3-3	Reline Brakes	Both Wheels	1	1.4	
55-3-4	Wheel Brake Cylinder Seals, R & R	Each Wheel	1	1.2	
55-3-5	Brake Master Cylinder, R & R		1	1.5	
55-3-6	Brake Master Cylinder Overhaul		1	0.8	
55-3-7	Tire, R & R		1	1.0	
55-3-8	Landing Gear Motor, R & R		1	2.8	
55-3-9	Main Gear Strut, R & R	Rigging & Bleeding Included	1	3.0	
55-3-10	Main Gear Strut Overhaul		1	8.5	
55-3-11	Nose Gear Strut, R & R	Rigging Included	1	2.5	
55-3-12	Nose Gear Sturt, Overhaul		1	6.0	
55-3-13	Landing Gear Actuator, O/H	R & R Included	1	11.5	
55-3-14	Shimmy Dampener, Service			1.0	
<b>IV. WING GROUP</b>					
<b>V. FLIGHT CONTROL GROUP</b>					
55-5-1	Flap Actuator, Overhaul	Includes R & R	1	4.0	
<b>VI. NORMAL SERVICE</b>					
55-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	3.0	
55-6-2	50-Hour Inspection	Drain Oil, Clean Screens Visual Inspection	2	12.0	
55-6-3	100-Hour Inspection	Beech Form - Repairs Not Included	2	24.0 +7.0	
<b>VII. KITS AND ACCESSORIES</b>					
<b>KITS NOTE:</b> Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.					

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
I. POWER PLANT GROUP, MODEL 65					<i>91 hrs Completed 1/2/65</i>
ENGINES					
65-1-1	Engine Change	Repairs Not Included	2	40.0	45.
65-1-2	IGSO-480-A1A6, Major Overhaul		2	170.0	
65-1-3	IGSO-480-A1A6, Top Overhaul		2	43.0	
65-1-4	100 Hour Inspection	Engine Only	1	11.0	
ACCESSORIES					
65-1-5	Starter, R & R		1	2.0	
65-1-6	Starter Solenoid, R & R		1	.6	
65-1-7	Generator, R & R	50 Ampere	1	3.0	
PROPELLERS					
65-1-8	Hartzell, Overhaul	Includes Balancing	1	16.3	
II. FUSELAGE GROUP					
65-2-1	100 Hour Inspection	Airframe Only	1	25.0	
65-2-2	Windshield, R & R	Each	2	15.0	
65-2-3	Cabin Window, R & R		1	3.0	
65-2-4	Reseal Cabin Door		1	1.0	
65-2-5	Cabin Door Lock, R & R		1	1.0	
65-2-6	Paint Job		2	200.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>III. LANDING GEAR GROUP</b>					
65-3-1	100 Hour Inspection	Landing Gear Only	1	7.0	
<b>BRAKES AND TIRES</b>					
65-3-2	Bleed Brakes		1	1.0	
65-3-3	Reline Brakes	Both Wheels	2	5.5	
65-3-4	Reseal Wheel Brake Cylinder	Each Wheel	1	1.0	
65-3-5	Landing Gear Motor, R & R		1	2.0	
65-3-6	Brake Master Cylinder, Overhaul		1	4.0	
65-3-7	Main Gear Strut, R & R	Rigging & Bleeding Included	1	4.0	
65-3-8	Main Gear Strut, Overhaul		1	8.5	
65-3-9	Tires, R & R		1	1.5	
65-3-10	Nose Gear Strut, R & R	Rigging Included	1	3.5	4
65-3-11	Nose Gear Strut, Overhaul		1	8.5	12
65-3-12	Shimmy Dampener, Service	R & R Included	1	2.0	
65-3-13	Landing Gear Actuator, O/H	R & R Included	1	9.8	
65-3-14	Nose Gear Actuator, O/H	R & R Included	1	9.5	
<b>IV. WING GROUP</b>					
<b>V. FLIGHT CONTROL GROUP</b>					
65-5-1	Flap Motor, R & R		1	2.5	
65-5-2	Flap Actuator, Overhaul	Includes R & R	1	4.0	
<b>VI. NORMAL SERVICE OPERATIONS</b>					
65-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	6.0	

KEY NO.	OPERATIONS	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>VI. NORMAL SERVICE OPERATIONS (Continued)</b>					
65-6-2	50 Hour Inspection	Drain Oil, Clean Screens, Visual Inspection	2	18.0	
65-6-3	100 Hour Inspection	Beech Form. Repairs Not Included	4	33.0	
<b>VII. KITS AND ACCESSORIES</b>					
<b>KITS NOTE:</b> Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.					





KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>I POWER PLANT GROUP, MODEL 95</b>					
<b>ENGINES</b>					
95-1-1	Engine, Change <i>TOP OVERHAUL</i>	Repairs Not Included	2	31.0	<u>35</u> 82
<b>ACCESSORIES</b>					
<b>PROPELLERS</b>					
95-1-2	Propeller Overhaul		1	12.5	
<b>II. FUSELAGE GROUP</b>					
95-2-1	Cabin Door Release, R & R		1	20.5	
95-2-2	Cabin Door Lock, R & R			1.0	
95-2-3	Cabin Door Seal, R & R		1	1.0	
95-2-4	Windshield, R & R	Each	2	10.0	
95-2-5	Window, Storm, R & R		1	3.0	
95-2-6	Window, Forward, LH, R & R		1	12.0	
95-2-7	Window, Door, R & R		1	12.0	
95-2-8	Window, Aft, R & R		1	8.0	
95-2-9	100 Hour Inspection	Airframe Only		16.0	
<b>III. LANDING GEAR GROUP</b>					
95-3-1	Inspection	Landing Gear Only		7.0	
<b>BRAKES AND TIRES</b>					
95-3-2	Bleed Brakes		1	1.0	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>BRAKES AND TIRES (Continued)</b>					
95-3-3	Reline Brakes	Both Wheels	1	1.4	
95-3-4	Wheel Brake Cyl. Seals, R & R	Each Wheel	1	1.2	
95-3-5	Brake Master Cylinder, R & R		1	1.5	
95-3-6	Brake Master Cylinder Overhaul		1	.8	
95-3-7	Tire, R & R		1	1.0	
95-3-8	Landing Gear Motor, R & R		1	2.8	
95-3-9	Main Gear Strut, R & R	Rigging & Bleeding Included	1	3.0	
95-3-10	Main Gear Strut Overhaul		1	8.5	
95-3-11	Nose Gear Strut, R & R	Rigging Included	1	2.5	
95-3-12	Nose Gear Strut, Overhaul		1	6.0	
95-3-13	Landing Gear Actuator, O/H	R & R Included	1	11.5	
95-3-14	Shimmy Dampener, Service			1.0	
<b>IV. WING GROUP</b>					
<b>V. FLIGHT CONTROL GROUP</b>					
95-5-1	Flap Actuator, Overhaul	Includes R & R	1	4.0	
<b>VI. NORMAL SERVICE OPERATIONS</b>					
95-6-1	Wash Job, Airplane	Exterior, Landing Gear, and Wells	1	3.0	
95-6-2	50 Hour Inspection	Drain Oil, Clean Screens, Visual Inspection	2	12.0	
95-6-3	100 Hour Inspection	Beech Form - Repairs Not Included	2	24.0	28

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
<b>VII. KITS AND ACCESSORIES</b>					
<b>KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.</b>					
95-7-1	Kit 95-800 Dual Brake Installation		2	24.0*	
95-7-2	Kit 95-801 Modified Bonanza Jack Installation		2	24.0*	
95-7-5	Kit 95-803 Replacement of Engine Oil Cooler Lines		1	3.0*	
95-7-6	Kit 95-804 Rotating Beacon (Belly Installation)		2	10.0*	
95-7-7	Kit 95-805 Improved Carburetor Air Box Installation		1	6.0*	
95-7-8	Kit 95-806 Relocation of Engine Fuel Strainer & Installation of Fuel Pump Blast Tube		2	17.5*	
95-7-9	Kit 95-807 Engine Oil Access Door Installation		1	5.0*	
95-7-10	Kit 95-808 Improved Engine Exhaust Stack		1	6.0*	
95-7-11	Kit 95-809 Removable Lower Engine Nose Cowl		2	30.0	
95-7-12	Kit 95-810 40 Amp Generators		2	22.0*	
95-7-13	Kit 95-810-1 40 Amp Generators		2	28.0*	
95-7-14	Kit 95-810-2 40 Amp Generators		2	28.0*	
95-7-15	Kit 95-812 Rerouted Engine Vent Line Installation		1	4.0*	
95-7-16	Kit 95-813 Second Heater Fuel Pump Installation		1	3.0*	
95-7-17	Kit 95-815 Propeller Anti-icer		2	35.0	
95-7-18	Kit 95-815-1 Propeller Anti-icer		2	35.0	
95-7-19	Kit 95-818 Heated Fuel Cell Vents		1	6.0*	
95-7-20	Kit 95-820 Emergency Static Air Source		1	6.0*	

KEY NO.	OPERATION	REMARKS	OPTIMUM CREW SIZE	TOTAL MAN HOURS (National Average)	TOTAL MAN HOURS (Your Average)
KITS (Continued)					
95-7-21	Kit 95-821 Heated Stall Warning System		1	2.0*	
95-7-22	Kit 35-653 Modified Upper Cabin Door Latch		1	2.5*	
95-7-23	Kit 115 Airheart Automatic Brake Release Units Two required.		1	1.5*	
(*Denotes Estimated Man-Hours)					

*Part II*

*Operation Description*



## I. POWER PLANT GROUP

18-1-1. 100 Hour Inspection - Separate and complete engine inspection including those items recommended in Beech Service Information.

### 18-1-2. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain crankcase.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 18-1-3. MAJOR ENGINE OVERHAUL

The major overhaul of an engine is described in the engine manufacturer's maintenance and overhaul manual and this should be followed closely when overhauling an engine. The time given for an overhaul does not include time necessary for removing and replacing the engine, nor time necessary for overhauling accessories such as starters, generators, carburetors and so forth. Extra work required on the engine overhaul such as cylinder re-grinding or crankshaft re-grinding is not included in the flat rate time. The times given are for a single engine and must be multiplied by two for twin-engine aircraft.

### 18-1-4. TOP OVERHAUL

Remove cowling, perform top overhaul, ground test, flight test, inspect and replace cowling.

### 18-1-5. CARBURETOR - Remove and replace.

Remove cowling, all controls and air intake attachments, remove carburetor, replace carburetor and all air intake attachments. Ground test, adjust and replace cowling.

### 18-1-6. STARTER - Remove and replace.

Remove cowling, disconnect electrical connections and remove starter from airplane. Replace starter in airplane and connect electrical connections. Ground test and replace cowling.

### 18-1-7. GENERATOR - Remove and replace.

Remove cowling, disconnect electrical connections, remove generator from airplane. Replace generator in airplane. Re-connect electrical connections and blast tube. Ground test and replace cowling.

### 18-1-8. PROPELLER - Remove and replace.

Remove dome. Remove propeller. Replace propeller and replace dome. Ground test.

### 18-1-9. PROPELLER - Overhaul.

Follow manufacturer's overhaul handbook instructions and balance propeller. Does not include time for removing and replacing propeller.

### 18-1-10. HAMILTON HYDROMATIC PROPELLER - Desludge.

Remove propeller dome - desludge dome, replace dome.

## II. FUSELAGE GROUP

### III. LANDING GEAR GROUP

18-3-1. 100 HOUR INSPECTION - Separate inspection of landing gear, including those items recommended in Beech service information.

18-3-2. RELINE BRAKES; BOTH WHEELS.

Jack airplane. Remove wheel, brake casting, disc, and remove lining; install lining, disc, brake casting and wheel.

18-3-3. PARKING BRAKE VALVE SEALS - Remove and replace (Removal and replacement of valve included).

Drain brake reservoir, disconnect plumbing, valve control, remove valve, disassemble valve, replace seals, reassemble valve. Reinstall valve, valve control, plumbing, bleed system and fill.

18-3-4. TIRE - Remove and replace.

Jack airplane, remove wheel assembly from fork, deflate, remove wheel hold down nuts, remove tire, tube; replace tire and tube, replace wheel halves and hold down nuts, inflate and reinstall wheel assembly.

18-3-5. TAIL WHEEL TIRE - Remove and replace.

Jack tail section, remove wheel from fork, remove dust covers, bearings, retainer rings and pins, remove tire and tube; replace tire and tube, retainer rings and pins, bearings, and dust covers. Install wheel on fork.

18-3-6. LANDING GEAR MOTOR - Remove and replace.

Jack airplane. Remove belly access door, disconnect wiring, remove retainer strap, remove motor from gear box; install motor on gear box, replace retainer strap, connect wiring, check and replace access door.

18-3-7. LANDING GEAR MOTOR - Overhaul (Includes removal and replacement).

Disassemble motor, replace worn parts; reassemble and test, according to manufacturer's instructions.

18-3-8. GEAR BOX - Overhaul (Includes removal and replacement).

Overhaul: Disassemble and replace worn parts. Reassemble and fill with lubricant.

Removal and replacement: Remove belly access door, disconnect all linkages to main and tail landing gear, remove retaining studs between gear box and motor, remove gear box; replace gear box, studs, linkages and check for proper rig and operation. Install access door.

18-3-9. TAIL STRUT - Overhaul: Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

18-3-10. TAIL STRUT SEALS - Remove and replace.

Jack aft section, remove strut brace assembly, remove strut, disassemble and replace seals; reassemble, replace strut, brace assembly, fill strut and test.

18-3-11. MAIN STRUT - Overhaul: Disassemble, inspect, replace worn parts and reassemble. ✓

18-3-12. LANDING GEAR DOOR HINGE - Remove and replace.

Remove hinge wire, disconnect door actuator mechanism and remove door; drill out hinge attaching rivets: rivet hinges to door and nacelle, replace door. Jack airplane and check for proper operation.

### IV. WING GROUP

18-4-1. DE-ICER BOOTS - Remove and replace all boots.

Models D18 and E18 - remove retaining strips and fairings, disconnect boots, remove boots. Replace boots, replace retaining strips and fairings and reconnect boots. Check for proper operation.

18-4-2. STABILIZER DE-ICER BOOT - Remove and replace.

Models D18 and E18 - remove retaining strips and fairings from boots, disconnect de-icer boots, remove de-icer boots, replace de-icer boots, replace retaining strips and fairings and reconnect de-icer boot. Check for proper operation.

18-4-3. DE-ICER BOOTS - WING - Remove and replace. (Same as 18-4-1)



## V. FLIGHT CONTROL GROUP

### 18-5-1. FLAP MOTOR - Remove and replace.

Remove belly access plate. Remove flap chain guard and chain from flap motor sprocket. Disconnect electrical wiring and remove flap motor. Replace flap motor. Reconnect electrical wiring, attach flap chain and chain guard. Check travel and operation and replace access panel.

### 18-5-2. FLAP GEARBOX - Remove and replace.

This includes all operations in 18-5-1, plus the removal and replacement of the flap gearbox.

### 18-5-3. FLAP GEAR BOX - Overhaul.

### 18-5-4. AILERON CONTROL ARM BEARINGS - Remove and replace.

Open access door, disconnect control arm, remove bearing. Replace bearing, re-connect control arm, close access door. This operation includes time for changing bearings in both control arms.

### 18-5-5. ELEVATOR TRIM TAB 90° DRIVES AND UNIVERSAL - Remove and replace.

Open access doors. Remove trim tab cable and chain from sprocket. Remove 90° drives. Remove universal. Replace universal and drive, replace trim tab cable chain on sprocket.

### 18-5-6. CONTROL SURFACES - Remove and replace.

This operation includes removing and replacing all control surfaces on the airplane, and includes necessary rigging and flight check after installation.

### 18-5-7. CONTROL SURFACE RECOVERING

This operation includes time necessary for removing old fabric from control surface, replacing with new fabric and repainting. Does not include removal and replacement of the control surface.

## VI. NORMAL SERVICE OPERATIONS

### 18-6-1. WASH JOB - AIRPLANE

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the wind-shield.

### 18-6-2. OIL CHANGE AND ENGINE WASH

Includes time necessary to drain old oil and add new oil to both engines and wash down engine with solvent.

### 18-6-3. 50 HOUR INSPECTION

Includes periodic 50 hour inspection as recommended in Beech service data.

### 18-6-4. 100 HOUR INSPECTION

Includes periodic 100 hour inspection as recommended in Beech service data.

### 18-6-5. PAINT JOB - Includes time necessary to strip, clean, prepare and paint the aircraft.

## VII. KITS AND ACCESSORIES

KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.

## MODEL 18 ACCESSORIES

### 18-7-66. D18S DE-ICERS

Install plumbing in wings and fuselage, install timer and associated support brackets in left wheel well and install boots on wing leading edges. Rework wing and stabilizer fairings and install.

### 18-7-67. D18S DUAL PITOT MAST

Install pitot mast doubler, pitot mast; route plumbing from mast to instrument panel, install electrical wiring for pitot heat system.

### 18-7-68. GRIMES ROTATING BEACON

Cut hole in top of fuselage, mount support bracket around hole, mount lamp assembly, route and connect electrical wiring, install control switch and circuit breaker. Perform functional test.

## I. POWER PLANT GROUP

### 33-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain crankcase.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 33-1-2. MAJOR ENGINE - Overhaul.

The major overhaul of an engine is described in the engine manufacturer's maintenance and overhaul manual and this should be followed closely when overhauling an engine. The time given for an overhaul does not include time necessary for removing and replacing the engine, nor time necessary for overhauling accessories such as starters, generators, carburetors and so forth. Extra work required on the engine overhaul such as cylinder re-grinding or crankshaft re-grinding is not included in the flat rate time.

### 33-1-3. TOP OVERHAUL

Remove cowling, perform top overhaul, replace cowling.

### 33-1-4. EXHAUST GASKETS - Remove and replace.

Remove cowling, access doors and exhaust manifold and install new gaskets. Replace exhaust manifold.

### 33-1-5. PUSHROD SEALS - Remove and replace.

Open cowling, remove the cover from rocker box, pull out pushrod, replace seals, insert pushrod, replace cover on rocker box.

### 33-1-6 INTAKE SEALS - Remove and replace.

Open cowling and access doors and remove intake manifold, install new seal, replace intake manifold.

### 33-1-7. LORD ENGINE MOUNTS - Remove and replace.

Remove cowling and disconnect engine as necessary, partially hoist engine, replace engine mounts, lower engine and bolt in place, re-connect engine.

### 33-1-8. IGNITION HARNESS LEAD - Remove and replace.

Disconnect the ignition harness lead and remove from airplane. Reinstall ignition harness lead and connect.

### 33-1-9. 100 HOUR INSPECTION

Separate engine inspection including those items recommended in Beech service information.

### 33-1-10. STARTER SOLENOID - Remove and replace.

Remove electrical connections from solenoid and remove solenoid from starter or firewall. Attach solenoid and attach electrical connections.

33-1-11. MAGNETO - Remove and replace.

Disconnect "P" lead, remove magneto, replace magneto, reconnect "P" lead.

33-1-12. POINTS AND CONDENSER - Remove and replace.

Remove magneto cover. Remove points and condenser. Replace new points and condenser, replace magneto cover.

33-1-13. ENGINE DRIVEN FUEL PUMP - Remove and replace.

Open cowling, remove fuel pump, replace fuel pump.

33-1-14. PROPELLER - Remove and replace.

Remove spinner. Remove propeller. Replace propeller and replace spinner. Ground test and flight test.

33-1-15. PROPELLER - Overhaul.

Follow manufacturer's overhaul handbook instructions and balance propeller. Does not include time for removing and replacing propeller.

33-1-16. 250 HOUR INSPECTION - MODEL R200, B200 and 215 Propellers.

Inspect in accordance with manufacturer's recommendations, and lubricate pitch change bearing. Does not include time for removal or replacement of propeller.

## II. FUSELAGE GROUP

33-2-1. CABIN DOOR RELEASE - Remove and replace.

Remove upholstery panel, door latch linkages, door latch assemblies; replace door latch assemblies, door latch linkages and upholstery panel.

33-2-2. CABIN DOOR SEAL - Remove and replace.

Remove seal, clean door; install and fit seal.

33-2-3. CABIN DOOR LOCK - Remove and replace.

33-2-4. BAGGAGE DOOR LOCK - Remove and replace.

33-2-5. WINDSHIELD - Remove and replace.

Remove retaining frame and moulding, remove windshield, seals; replace seals, windshield, moulding and retaining frame; repaint.

33-2-6. STORM WINDOW - Remove and replace.

Remove stop mechanism, hing pin; replace hinge pin and reinstall stop.

33-2-7. FORWARD LEFT HAND WINDOW - Remove and replace.

Remove attaching screws, window, and seal; replace seal, window and attaching screws.

33-2-8. DOOR WINDOW - Remove and replace.

Remove moulding, window and seal; replace seal, window and moulding.

33-2-9. AFT WINDOW - Remove and replace.

Remove emergency release pin and the upper piano-type hinge wire; replace upper piano-type hinge wire and the emergency release pin and fit window into frame.

### 33-2-10. 100 HOUR INSPECTION

Complete airframe inspection including appropriate items recommended in Beech service data.

## III. LANDING GEAR GROUP

### 33-3-1. 100 HOUR INSPECTION

Complete inspection of landing gear covering all appropriate items recommended in Beech service information.

### 33-3-2. BLEED BRAKES

Install brake bleeding pot and bleed brake. Check brake fluid level.

### 33-3-3. RELINE BRAKES; BOTH WHEELS

Jack airplane. Remove wheel, disc, and remove lining; install lining, disc, and wheel.

### 33-3-4. WHEEL BRAKE CYLINDER SEALS - Remove and replace, each wheel (Does not include bleeding).

Jack airplane. Remove wheel, disc, brake lining, brake cylinder and seal; install seal, brake cylinder, brake lining, disc and wheel.

### 33-3-5. BRAKE MASTER CYLINDER - Remove and replace.

Remove left forward carpet and floorboard, disconnect hydraulic hoses from master cylinder, remove cylinder; replace cylinder, install hydraulic hoses, replace floorboard and carpet and bleed brake system.

### 33-3-6. BRAKE MASTER CYLINDER - Overhaul (Not including removal or replacement).

Disassemble master cylinder, inspect parts, replace parts as necessary; reassemble master cylinder and test.

### 33-3-7. TIRE - Remove and replace.

Jack airplane. Deflate, remove wheel hold down nuts, remove tire, tube; replace tire and tube, replace wheel halves and hold down nuts, inflate.

### 33-3-8. LANDING GEAR MOTOR - Remove and replace.

Jack airplane. Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat. Check for proper operation.

### 33-3-9 MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, landing gear doors, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut; replace strut, install gear brace assemblies, linkages and actuator rods, doors, connect brake lines; bleed brake system and check gear operation.

### 33-3-10. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble.

### 33-3-11. NOSE GEAR STRUT - Remove and replace (Rigging included).

Jack airplane. Disconnect actuator rods and linkages, remove gear brace assembly, strut; replace strut, brace assembly, actuator rods and linkages. Check for proper operation.

### 33-3-12. NOSE GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

**33-3-13. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).**

Jack airplane. Remove rod linkages from gear box to struts, remove gear box and disassemble components, replace worn parts; reassemble and reinstall. Check for proper operation.

**33-3-14. SAFETY SWITCH BOOT - Remove and replace.**

Jack airplane. Remove boot and replace. Check switch for proper operation.

**33-3-15. SHIMMY DAMPENER - Service (Removal and replacement included).**

Remove dampener from strut, check fluid level, replenish as necessary; replace dampener on strut.

**V. FLIGHT CONTROL GROUP**

**33-5-1. FLAP MOTOR - Remove and replace.**

Remove right front seat, remove access cover, disconnect electrical wiring, remove motor from gearbox. Replace flap motor, replace electrical wiring, replace flap access plate, replace right front seat. Check operation.

**33-5-2. FLAP ACTUATOR - Overhaul.**

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel. Check operation.

**VI. NORMAL SERVICE OPERATIONS**

**33-6-1. WASH JOB - AIRPLANE**

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the windshield.

**33-6-2. 50 HOUR INSPECTION**

Includes periodic 50 hour inspection as recommended in Beech service data.

**33-6-3. 100 HOUR INSPECTION**

Includes periodic 100 hour inspection as recommended in Beech service data.

**33-6-4. PAINT JOB - Includes stripping, cleaning, preparing and painting.**

**VII. KITS AND ACCESSORIES**

**KITS NOTE:** Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.

## I. POWER PLANT GROUP

### 35-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain crankcase.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 35-1-2. MAJOR ENGINE - Overhaul.

The major overhaul of an engine is described in the engine manufacturer's maintenance and overhaul manual and this should be followed closely when overhauling an engine. The time given for an overhaul does not include time necessary for removing and replacing the engine, nor time necessary for overhauling accessories such as starters, generators, carburetors and so forth. Extra work required on the engine overhaul such as cylinder re-grinding or crankshaft re-grinding is not included in the flat rate time.

### 35-1-3. TOP OVERHAUL.

Remove cowling, perform top overhaul, replace cowling.

### 35-1-4. EXHAUST GASKETS - Remove and replace.

Remove cowling, access doors and exhaust manifold and install new gaskets. Replace exhaust manifold.

### 35-1-5. PUSHROD SEALS - Remove and replace.

Open cowling, remove the cover from rocker box, pull out pushrod, replace seals, insert pushrod, replace cover on rocker box.

### 35-1-6. INTAKE SEALS - Remove and replace.

Open cowling and access doors and remove intake manifold, install new seal, replace intake manifold.

### 35-1-7. LORD ENGINE MOUNTS - Remove and replace.

Remove cowling and disconnect engine as necessary, partially hoist engine, replace engine mounts, lower engine and bolt in place, re-connect engine.

### 35-1-8. IGNITION HARNESS LEAD - Remove and replace.

Disconnect the ignition harness lead and remove from airplane. Reinstall ignition harness lead and connect.

### 35-1-9. 100 HOUR INSPECTION

Separate engine inspection including those items recommended in Beech service information.

### 35-1-10. CARBURETOR - Remove and replace.

Remove cowling access panels, disconnect controls and air induction system and remove carburetor. Replace carburetor, attach controls and air scoop and replace access panels.

### 35-1-11. STARTER SOLENOID - Remove and replace.

Remove electrical connections from solenoid and remove solenoid from starter or firewall. Attach solenoid and attach electrical connections.

35-1-11. MAGNETO - Remove and replace.

Disconnect "P" lead, remove magneto, replace magneto, reconnect "P" lead.

35-1-12. POINTS AND CONDENSER - Remove and replace.

Remove magneto cover. Remove points and condenser. Replace new points and condenser, replace magneto cover.

35-1-13. ENGINE DRIVEN FUEL PUMP - Remove and replace.

Open cowling, remove fuel pump, replace fuel pump.

35-1-14. PROPELLER - Remove and replace.

Remove spinner. Remove propeller. Replace propeller and replace spinner. Ground test and flight test.

35-1-15. PROPELLER - Overhaul.

Follow manufacturer's overhaul handbook instructions and balance propeller. Does not include time for removing and replacing propeller.

35-1-16. 250 HOUR INSPECTION - MODEL R200, B200 and 215 Propellers.

Inspect in accordance with manufacturer's recommendations, and lubricate pitch change bearing. Does not include time for removal or replacement of propeller.

35-1-17. PROPELLER MOTOR - Overhaul (Models R200, B200 and 215 Propellers).

Remove propeller motor, overhaul motor, replace motor. Does not include time for removal and replacement of propeller.

## II. FUSELAGE GROUP

35-2-1. CABIN DOOR RELEASE - Remove and replace.

Remove upholstery panel, door latch linkages, door latch assemblies; replace door latch assemblies, door latch linkages and upholstery panel.

35-2-2. CABIN DOOR SEAL - Remove and replace.

35-2-3. CABIN DOOR LOCK - Remove and replace.

35-2-4. BAGGAGE DOOR LOCK - Remove and replace.

35-2-5. WINDSHIELD - Remove and replace.

Remove retaining frame and moulding, remove windshield, seals; replace seals, windshield, moulding and retaining frame; repaint.

35-2-6. STORM WINDOW - Remove and replace.

Remove stop mechanism, hinge pin; replace hinge pin and reinstall stop.

35-2-7. FORWARD LEFT HAND WINDOW - Remove and replace.

Remove attaching screws, window, and seal; replace seal, window and attaching screws.

35-2-8. DOOR WINDOW - Remove and replace.

Remove moulding, window and seal; replace seal, window and moulding.

35-2-9. AFT WINDOW - Remove and replace.

Remove emergency release pin and the upper piano-type hinge wire; replace upper piano-type hinge wire and the emergency release pin and fit window into frame.

35-2-10. 100 HOUR INSPECTION

Complete airframe inspection including appropriate items recommended in Beech service data.



### III. LANDING GEAR GROUP

#### 35-3-1. 100 HOUR INSPECTION

Complete inspection of landing gear covering all appropriate items recommended in Beech service information.

#### 35-3-2. BLEED BRAKES

Install brake bleeding pot and bleed brake. Check brake fluid level.

#### 35-3-3. RELINE BRAKES; BOTH WHEELS

Jack airplane. Remove wheel, disc, and remove lining; install lining, disc, and wheel.

#### 35-3-4. WHEEL BRAKE CYLINDER SEALS - Remove and replace, each wheel (Does not include bleeding).

Jack airplane. Remove wheel, disc, brake lining, brake cylinder and seal; install seal, brake cylinder, brake lining, disc and wheel.

#### 35-3-5. BRAKE MASTER CYLINDER - Remove and replace.

Remove left forward carpet and floorboard, disconnect hydraulic hoses from master cylinder, remove cylinder; replace cylinder, install hydraulic hoses, replace floorboard and carpet and bleed brake system.

#### 35-3-6. BRAKE MASTER CYLINDER - Overhaul (Not including removal or replacement).

Disassemble master cylinder, inspect parts, replace parts as necessary; reassemble master cylinder and test.

#### 35-3-7. EXCHANGE WHEELS AND BRAKES FROM FIRESTONE TO GOODYEAR (Includes bleeding).

Jack airplane. Remove wheel, remove Firestone brake casting assembly, remove left forward carpet and floorboard, disconnect hydraulic hoses from Firestone master cylinder, remove cylinder; install Goodyear master cylinder, install hydraulic hoses, replace floorboard and carpet, install Goodyear brake casting assembly and wheel and bleed brake system.

#### 35-3-8. TIRE - Remove and replace.

Jack airplane. Deflate, remove wheel hold down nuts, remove tire, tube; replace tire and tube, replace wheel halves and hold down nuts, inflate.

#### 35-3-9. LANDING GEAR MOTOR - Remove and replace.

Jack airplane. Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat. Check for proper operation.

#### 35-3-10. MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, landing gear doors, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut; replace strut, install gear brace assemblies, linkages and actuator rods, doors, connect brake lines; bleed brake system and check gear operation.

#### 35-3-11. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble.

#### 35-3-12. NOSE GEAR STRUT - Remove and replace (Rigging included).

Jack airplane. Disconnect actuator rods and linkages, remove gear brace assembly, strut; replace strut, brace assembly, actuator rods and linkages. Check for proper operation.

#### 35-3-13. NOSE GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

#### 35-3-14. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).

Jack airplane. Remove rod linkages from gear box to struts, remove gear box and disassemble components, replace worn parts; reassemble and reinstall. Check for proper operation.

35-3-15. SAFETY SWITCH BOOT - Remove and replace.

Jack airplane. Remove boot and replace. Check switch for proper operation.

35-3-16. SHIMMY DAMPENER - Service (Removal and replacement included).

Remove dampener from strut, check fluid level, replenish as necessary; replace dampener on strut.

#### V. FLIGHT CONTROL GROUP

35-5-1. FLAP MOTOR - Remove and replace.

Remove right front seat, remove access cover, disconnect electrical wiring, remove motor from gearbox. Replace flap motor, replace electrical wiring, replace flap access plate, replace right front seat. Check operation.

35-5-2. FLAP ACTUATOR - Overhaul.

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel. Check operation.

#### VI. NORMAL SERVICE OPERATIONS

35-6-1. WASH JOB - AIRPLANE

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the wind-shield.

35-6-2. 50 HOUR INSPECTION

Includes periodic 50 hour inspection as recommended in Beech service data.

35-6-3. 100 HOUR INSPECTION

Includes periodic 100 hour inspection as recommended in Beech service data.

35-6-4. PAINT JOB - Includes stripping, cleaning, preparing and painting.

#### VII. KITS AND ACCESSORIES

KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.

## MODEL 35 ACCESSORIES

### 35-7-28. FLIGHT RESEARCH GOVERNOR

Install propeller motor, electrical wiring, research governor control box, manual control, 90 degree drive, propeller relay, circuit breaker and control switch with associated electrical wiring. Operational check.

### 35-7-29. LEAR ARCON AUTOMATIC RUDDER CONTROL

Install servo unit behind baggage compartment bulkhead, control unit on or near instrument panel; install directional gyro, amplifier unit; route and connect all electrical wiring. Functional test the unit. Install the complete unit according to the manufacturer's drawing.

### 35-7-30. SCOTT OXYGEN CONSOLE AND KIT (Side panel console).

Remove side upholstery panel, mount console support bracket, route plumbing, install oxygen bottle support bracket, reinstall side upholstery panel, install console and bottle. Operational check.

### 35-7-31. SCOTT OXYGEN CONSOLE AND KIT (Overhead console).

Remove overhead liner, mount console support brackets, route plumbing, install oxygen bottle support bracket, reinstall overhead liner, install console and bottle. Operational check.



## I. POWER PLANT GROUP

### 50-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain engine oil.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 50-1-2. MAJOR ENGINE OVERHAUL

The major overhaul of an engine is described in the engine manufacturer's maintenance and overhaul manual and this should be followed closely when overhauling an engine. The time given for an overhaul does not include time necessary for removing and replacing the engine, nor time necessary for overhauling accessories such as starters, generators, carburetors and so forth. Extra work required on the engine overhaul such as cylinder re-grinding or crankshaft re-grinding is not included in the flat rate time. The times given are for a single engine and must be multiplied by two or twin-engine aircraft.

### 50-1-3. TOP OVERHAUL

Remove cowling and perform top overhaul, replace cowling.

### 50-1-4. 100 HOUR INSPECTION

Complete inspection of engine and components as recommended in Beech service information.

### 50-1-5. STARTER - Repair and replace.

Remove cowling, disconnect electrical connections and remove starter from airplane. Replace starter in airplane and connect electrical connections. Ground test and replace cowling.

### 50-1-6. STARTER SOLENOID - Remove and replace.

Remove electrical connections from solenoid and remove solenoid from starter. Attach solenoid to starter and attach electrical connections.

### 50-1-7. CARBURETOR - Remove and replace.

Remove cowling, all controls and air intake attachments, remove carburetor, replace carburetor and all air intake attachments. Ground test, adjust and replace cowling.

### 50-1-8. GENERATOR - Remove and replace.

Remove cowling, disconnect electrical connections, remove generator from airplane. Replace generator in airplane. Attach electrical connections. Ground test and replace cowling.

### 50-1-9. PROPELLER - Overhaul.

Follow manufacturer's handbook for overhaul and balance instructions. Does not include time for removing and replacing propeller.

## II. FUSELAGE GROUP

### 50-2-1. 100 HOUR INSPECTION

Complete and separate inspection of the airframe including those components recommended in Beech service information.

### 50-2-2. CENTER WINDSHIELD - Repair and replace.

Remove retaining frame and moulding, remove windshield and seals; replace seals, windshield, moulding and retaining frame; repaint.

### 50-2-3. RIGHT OR LEFT WINDSHIELD - Repair and replace.

Remove retaining frame and moulding, remove windshield and seals; replace seals, windshield, moulding and retaining frame; repaint.

### 50-2-4. STORM WINDOW - Repair and replace.

Remove stop mechanism, hinge pin; replace hinge pin and reinstall stop.

### 50-2-5. FORWARD LEFT HAND WINDOW - Remove and replace.

Remove retaining frame and moulding, remove windshield and seals; replace seals, windshield, moulding and retaining frame; repaint.

### 50-2-6. AFT LEFT HAND WINDOW - Remove and replace.

Remove retaining frame and moulding, remove windshield and seals; replace seals, windshield, moulding and retaining frame; repaint.

### 50-2-7. AFT RIGHT HAND WINDOW - Remove and replace.

Remove retaining frame and moulding, remove windshield and seals; replace seals, windshield, moulding and retaining frame; repaint.

### 50-2-8. DOOR WINDOW - Remove and replace.

Remove moulding, window and seals; replace seals, window and moulding.

### 50-2-9 RESEAL CABIN DOOR - Remove and replace.

Remove seal, clean door; install and fit seal.

### 50-2-10. CABIN DOOR LOCK - Remove and replace.

### 50-2-11. PAINT JOB - Includes stripping, cleaning, preparing and painting.

## III. LANDING GEAR GROUP

### 50-3-1. 100 HOUR INSPECTION

Separate inspection of landing gear, including items recommended in Beech service information.

### 50-3-2. BLEED BRAKES

Attach brake bleeding pot and bleed system.

### 50-3-3. RELINE BRAKES; BOTH WHEELS

Jack airplane. Removal wheel, brake casting, disc, and remove lining; install lining, disc, brake casting, and wheel.

#### 50-3-4. RESEAL WHEEL BRAKE CYLINDER

Jack airplane. Remove wheel, disc, brake lining, brake cylinder, and seal; install seal, brake cylinder, brake lining, disc, and wheel.

#### 50-3-5. LANDING GEAR MOTOR - Remove and replace.

Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat.

#### 50-3-6. BRAKE MASTER CYLINDER - Overhaul.

Disassemble master cylinder, inspect parts, replace parts as necessary; reassemble master cylinder and test.

#### 50-3-7. MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut; replace strut, install gear brace assemblies, linkages and actuator rods; connect brake lines.

#### 50-3-8. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

#### 50-3-9. TIRES - Remove and replace.

Jack airplane. Deflate tire, remove wheel, tire and tube; replace tube, tire and wheel. Inflate tire.

#### 50-3-10. NOSE GEAR STRUT - Remove and replace.

Disconnect actuator rods and linkages, remove gear brace assembly and strut; replace strut, brace assembly, actuator rods and linkages. Test operation.

#### 50-3-11. NOSE GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble.

#### 50-3-12. SHIMMY DAMPENER - Service (Removal and replacement included).

Remove dampener from strut, check fluid level, replenish as necessary; replace dampener.

#### 50-3-13. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).

Remove rod and chain linkages from gear box to struts, disassemble components, replace worn parts; reassemble and reinstall according to manufacturer's instructions.

#### 50-3-14. NOSE GEAR ACTUATOR - Overhaul (Removal and replacement included).

Remove actuator from strut and structure, remove nose gear chain, disassemble, inspect and replace worn parts; reassemble, replace chain, and reinstall actuator according to manufacturer's instructions.

### V. FLIGHT CONTROL GROUP

#### 50-5-1. FLAP MOTOR - Remove and replace.

Remove rear seat. Remove flap motor access plate, remove flap flexible shafts and electrical wiring. Remove flap motor and gear box. Replace flap motor and gear box. Replace electrical wiring and flap shafts. Replace flap motor access panel. Replace rear seats.

#### 50-5-2. FLAP ACTUATOR - Overhaul.

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel.

## VI. NORMAL SERVICE OPERATIONS

### 50-6-1. WASH JOB - AIRPLANE

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the wind-shield.

### 50-6-2. 50 HOUR INSPECTION

Includes periodic 50 hour inspection as recommended in Beech service data.

### 50-6-3. 100 HOUR INSPECTION

Includes periodic 100 hour inspection as recommended in Beech service data.

## VII. KITS AND ACCESSORIES

**KITS NOTE:** Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.

### MODEL 50 ACCESSORIES

#### 50-7-34. SCOTT OXYGEN CONSOLE AND KIT

Remove cockpit overhead liner, mount console support bracket, route plumbing, install oxygen bottle support bracket, reinstall overhead liner, install console and bottle.

#### 50-7-35. SAFE-FLIGHT SPEED CONTROL

Locate and install sensing vein in wing, transmitter; install Safe Flight Speed Control instrument in control panel, route and connect electrical wiring. Adjust the system by flight testing.



## I. POWER PLANT GROUP

### 55-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain crankcase.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 55-1-2. PROPELLER - Overhaul.

Follow manufacturer's handbook instructions and balance propeller. Does not include time for removing and replacing propeller.

## II. FUSELAGE GROUP

### 55-2-1. CABIN DOOR RELEASE - Remove and replace.

Remove upholstery panel, door latch linkages, door latch assemblies; replace door latch assemblies, door latch linkages and upholstery panel.

### 55-2-2. CABIN DOOR LOCK - Remove and replace.

### 55-2-3. CABIN DOOR SEAL - Remove and replace.

Remove seal, clean door; install and fit seal.

### 55-2-4. WINDSHIELD - Remove and replace.

Remove retaining frame and moulding, remove windshield seals; replace seals, windshield, moulding and retaining frame.

### 55-2-5. STORM WINDOW - Remove and replace.

Remove stop mechanism, hinge pin; replace hinge pin and reinstall stop.

### 55-2-6. FORWARD LEFT HAND WINDOW - Remove and replace.

Remove attaching screws, window, and seal; replace seal, window and attaching screws.

### 55-2-7. DOOR WINDOW - Remove and replace.

Remove moulding, window and seal; replace seal, window and moulding.

### 55-2-8. AFT WINDOW - Remove and replace.

Remove emergency release pin and the upper piano-type hinge wire, replace upper piano-type hinge wire and the emergency release pin and fit window into frame.

### 55-2-9. 100 HOUR INSPECTION

Complete airframe inspection including those items recommended in Beech service information.

### III. LANDING GEAR GROUP

#### 55-3-1. 100 HOUR INSPECTION

Complete inspection of the landing gear including those items recommended in Beech service information.

#### 55-3-2. BLEED BRAKES

Hook up brake bleeding pot and bleed system.

#### 55-3-3. RELINE BRAKES: BOTH WHEELS

Jack airplane. Remove wheel, disc, and remove lining; install lining, disc, and wheel.

#### 55-3-4. WHEEL BRAKE CYLINDER SEALS - Remove and replace, each wheel (Does not include bleeding).

Jack airplane. Remove wheel, disc, brake lining, brake cylinder and seal; install seal, brake cylinder, brake lining, disc and wheel. Bleed brake system.

#### 55-3-5. BRAKE MASTER CYLINDER - Remove and replace.

Remove left, forward carpet and floorboard, disconnect hydraulic hoses from master cylinder, remove cylinder; replace cylinder, install hydraulic hoses, replace floorboard and carpet. Bleed system.

#### 55-3-6. BRAKE MASTER CYLINDER - Overhaul (Not including removal or replacement).

Disassemble master cylinder, inspect parts, replace as necessary; reassemble master cylinder and test, according to manufacturer's instructions.

#### 55-3-7. TIRE - Remove and replace.

Jack airplane. Deflate, remove wheel hold down nuts, remove tire, tube; replace tire and tube, replace wheel halves and hold down nuts, inflate.

#### 55-3-8. LANDING GEAR MOTOR - Remove and replace.

Jack airplane. Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat. Run functional check.

#### 55-3-9. MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, landing gear doors, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut, replace strut, install gear brace assemblies, linkages and actuator rods, doors, connect brake lines. Bleed brakes and run functional check.

#### 55-3-10. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

#### 55-3-11. NOSE GEAR STRUT - Remove and replace (Rigging included).

Disconnect actuator rods and linkages, remove gear brace assembly, strut; replace strut, brace assembly, actuator rods and linkages. Functional test.

#### 55-3-12. NOSE GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble.

#### 55-3-13. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).

Jack airplane. Remove rod linkages from gear box to struts, disassemble components, replace worn parts; reassemble and reinstall. Rig and run functional test.

#### 55-3-14. SHIMMY DAMPENER - Serviced.

Remove dampener from strut, check fluid level, and replenish as necessary; replace dampener on strut.

## V. FLIGHT CONTROL GROUP

### 55-5-1. FLAP ACTUATOR - Overhaul.

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel and run functional test.

## VI. NORMAL SERVICE OPERATIONS

### 55-6-1. WASH JOB - AIRPLANE

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the windshield.

### 55-6-2. 50 HOUR INSPECTION

Includes periodic 50 hour inspection as recommended in Beech service data.

### 55-6-3. 100 HOUR INSPECTION

Includes periodic 100 hour inspection as recommended in Beech service data.

## VII. KITS AND ACCESSORIES

**KITS NOTE:** Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.



## I. POWER PLANT GROUP

### 65-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove the propeller and cowling.
2. Drain engine oil.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine out of the nacelle.
5. Remove accessories which are to be used on the new engine and install them.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test the new engine.
9. Flight test the engine.
10. Inspect the engine after the flight test.

#### NOTE

Follow the manufacturer's instructions for run in procedure on a new or overhauled engine.

### 65-1-2. MAJOR ENGINE OVERHAUL

The major overhaul of an engine is described in the engine manufacturer's maintenance and overhaul manual and this should be followed closely when overhauling an engine. The time given for an overhaul does not include time necessary for removing and replacing the engine, nor time necessary for overhauling accessories such as starters, generators, carburetors and so forth. Extra work required on the engine overhaul such as cylinder re-grinding or crankshaft re-grinding is not included in the flat rate time. The times given are for a single engine and must be multiplied by two or twin-engine aircraft.

### 65-1-3. TOP OVERHAUL

Remove cowling, perform top overhaul, replace cowling.

### 65-1-4. 100 HOUR INSPECTION

Complete and separate inspection of the engine and its components as recommended in Beech service information.

### 65-1-5. STARTER - Remove and replace.

Remove cowling, disconnect electrical connections and remove starter from airplane. Replace starter in airplane and connect electrical connections. Ground test and replace cowling.

### 65-1-6. STARTER SOLENOID - Remove and replace.

Remove electrical connections from solenoid and remove solenoid from starter. Attach solenoid to starter and attach electrical connections.

### 65-1-7. GENERATOR - Remove and replace.

Remove cowling, disconnect electrical connections, remove generator from airplane. Replace generator in airplane. Attach electrical connections. Ground test and replace cowling.

### 65-1-8. PROPELLER - Overhaul.

Follow manufacturer's handbook for overhaul and balance instructions. Does not include time for removing and replacing propeller.

## II. FUSELAGE GROUP

### 65-2-1. 100 HOUR INSPECTION

Complete and separate inspection of the airframe including those components recommended in Beech service information.

65-2-2. WINDSHIELDS - Remove and replace.

Remove exterior retaining frame and moulding, remove windshield panel and seals; replace seals and windshield, moulding and retaining frame; repaint.

65-2-3. CABIN WINDOWS - Remove and replace.

Remove moulding, seals and window; replace seals, window and moulding.

65-2-4. RESEAL CABIN DOOR - Remove and replace.

Remove old seal, clean door, install and fit new seal.

65-2-5. CABIN DOOR LOCK - Remove and replace.

65-2-6. PAINT JOB - Includes stripping, cleaning preparing and painting.

### III. LANDING GEAR GROUP

65-3-1. 100 HOUR INSPECTION

Separate inspection of landing gear, including those items recommended in Beech service information.

65-3-2. BLEED BRAKES

Attach brake bleeding pot and bleed system.

65-3-3. RELINE BRAKES; BOTH WHEELS

Jack airplane. Remove wheel, brake casting, disc, and remove lining; install new lining, disc, brake casting, and wheel.

65-3-4. RESEAL WHEEL BRAKE CYLINDER

Jack airplane. Remove wheel, disc, brake lining, brake cylinder, and seal; install seal, brake cylinder, brake lining, disc and wheel.

65-3-5. LANDING GEAR MOTOR - Remove and replace.

Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat.

65-3-6. BRAKE MASTER CYLINDER - Overhaul.

Disassemble master cylinder, inspect parts, replace parts as necessary; reassemble master cylinder and test.

65-3-7. MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut; replace strut, install gear brace assemblies, linkages and actuator rods; connect brake lines.

65-3-8. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

65-3-9. TIRES - Remove and replace.

Jack airplane. Deflate tire; remove wheel, tire, and tube; replace tube, tire and wheel. Inflate tire.

65-3-10. NOSE GEAR STRUT - Remove and replace.

Disconnect actuator rods and linkages, remove gear brace assembly and strut; replace strut, brace assembly, actuator rods and linkages. Test operation.

**65-3-11. NOSE GEAR STRUT - Overhaul.**

Disassemble, inspect, replace worn parts and reassemble.

**65-3-12. SHIMMY DAMPENER - Service (Removal and replacement included).**

Remove dampener from strut, check fluid level, replenish as necessary; replace dampener.

**65-3-13. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).**

Remove rod and chain linkage from gear box to struts, disassemble components, replace worn parts; reassemble and reinstall according to manufacturer's instructions.

**65-3-14. NOSE GEAR ACTUATOR - Overhaul (Removal and replacement included).**

Remove actuator from strut and structure, remove nose gear chain, disassemble, inspect and replace worn parts; reassemble, replace chain, and reinstall actuator according to manufacturer's instructions.

**V. FLIGHT CONTROL GROUP**

**65-5-1. FLAP MOTOR - Remove and replace.**

Remove rear seat. Remove flap motor access plate, remove flap flexible shafts and electrical wiring. Remove flap motor and gear box. Replace flap motor and gear box. Replace electrical wiring and flap shafts. Replace flap motor access panel. Replace rear seats.

**65-5-2. FLAP ACTUATOR - Overhaul.**

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel.

**VI. NORMAL SERVICE OPERATIONS**

**65-6-1. WASH JOB - AIRPLANE.**

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the windshield.

**65-6-2. 50 HOUR INSPECTION.**

Includes periodic 50 hour inspection as recommended in Beech service information.

**65-6-3. 100 HOUR INSPECTION.**

Includes 100 hour inspection as recommended in Beech service information.

**VII. KITS AND ACCESSORIES**

**KITS NOTE:** Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.





## I. POWER PLANT GROUP

### 95-1-1. ENGINE CHANGE

The following operations are included in an engine change:

1. Remove propeller and cowling.
2. Drain crankcase.
3. Disconnect engine controls, engine indicator attachments, electrical connections, fuel system connections, and magneto primary leads.
4. Hoist engine clear of airplane.
5. Remove accessories which are to be used on the new engine and install on the new engine.
6. Install new engine and connect all controls and attachments.
7. Replace cowling and propeller.
8. Ground test engine.
9. Flight test engine.
10. Inspect engine after flight test.

#### NOTE

If the engine is a new or overhauled one and has not been run in, the run in procedure recommended by the manufacturer should be followed.

### 95-1-2. PROPELLER - Overhaul.

Follow manufacturer's handbook instructions and balance propeller. Does not include time for removing and replacing propeller.

## II. FUSELAGE GROUP

### 95-2-1. CABIN DOOR RELEASE - Remove and replace.

Remove upholstery panel, door latch linkages, door latch assemblies; replace door latch assemblies, door latch linkages and upholstery panel.

### 95-2-2. CABIN DOOR LOCK - Remove and replace.

### 95-2-3. CABIN DOOR SEAL - Remove and replace.

Remove seal, clean door; install and fit seal.

### 95-2-4. WINDSHIELD - Remove and replace.

Remove retaining frame and moulding, remove windshield seals; replace seals, windshield, moulding and retaining frame.

### 95-2-5. STORM WINDOW - Remove and replace.

Remove stop mechanism, hinge pin; replace hinge pin and reinstall stop.

### 95-2-6. FORWARD LEFT HAND WINDOW - Remove and replace.

Remove attaching screws, window, and seal; replace seal, window and attaching screws.

### 95-2-7. DOOR WINDOW - Remove and replace.

Remove moulding, window and seal; replace seal, window and moulding.

### 95-2-8. AFT WINDOW - Remove and replace.

Remove emergency release pin and the upper piano-type hinge wire, replace upper piano-type hinge wire and the emergency release pin and fit window into frame.

### 95-2-9. 100 HOUR INSPECTION

Complete airframe inspection including those items recommended in Beech service information.

## III. LANDING GEAR GROUP

### 95-3-1. 100 HOUR INSPECTION

Complete inspection of the landing gear including those items recommended in Beech service information.

### 95-3-2. BLEED BRAKES

Hook up brake bleeding pot and bleed system.

### 95-3-3. RELINE BRAKES: BOTH WHEELS

Jack airplane. Remove wheel, disc, and remove lining; install lining, disc, and wheel.

### 95-3-4. WHEEL BRAKE CYLINDER SEALS - Remove and replace, each wheel (Does not include bleeding).

Jack airplane. Remove wheel, disc, brake lining, brake cylinder and seal; install seal, brake cylinder, brake lining, disc and wheel. Bleed brake system.

### 95-3-5. BRAKE MASTER CYLINDER - Remove and replace.

Remove left, forward carpet and floorboard, disconnect hydraulic hoses from master cylinder, remove cylinder; replace cylinder, install hydraulic hoses, replace floorboard and carpet. Bleed system.

### 95-3-6. BRAKE MASTER CYLINDER - Overhaul (Not including removal or replacement).

Disassemble master cylinder, inspect parts, replace as necessary; reassemble master cylinder and test, according to manufacturer's instructions.

### 95-3-7. TIRE - Remove and replace.

Jack airplane. Deflate, remove wheel hold down nuts, remove tire, tube; replace tire and tube, replace wheel halves and hold down nuts, inflate.

### 95-3-8. LANDING GEAR MOTOR - Remove and replace.

Jack airplane. Remove right front seat, remove landing gear motor access plate, disconnect electrical wiring, remove motor from gear box; replace motor on gear box, connect electrical wiring, replace access plate and right front seat. Run functional check.

### 95-3-9. MAIN GEAR STRUT - Remove and replace (Rigging and brake bleeding included).

Jack airplane, disconnect brake lines, landing gear doors, disconnect actuator rods and linkages, disconnect gear brace assemblies, remove strut, replace strut, install gear brace assemblies, linkages and actuator rods, doors, connect brake lines. Bleed brakes and run functional check.

### 95-3-10. MAIN GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble according to manufacturer's instructions.

### 95-3-11. NOSE GEAR STRUT - Remove and replace (Rigging included).

Disconnect actuator rods and linkages, remove gear brace assembly, strut; replace strut, brace assembly, actuator rods and linkages. Functional test.

### 95-3-12. NOSE GEAR STRUT - Overhaul.

Disassemble, inspect, replace worn parts and reassemble.

### 95-3-13. LANDING GEAR ACTUATOR - Overhaul (Removal and replacement included).

Jack airplane. Remove rod linkages from gear box to struts, disassemble components, replace worn parts; reassemble and reinstall. Rig and run functional test.

### 95-3-14. SHIMMY DAMPENER - Serviced.

Remove dampener from strut, check fluid level, and replenish as necessary; replace dampener on strut.

## V. FLIGHT CONTROL GROUP

### 95-5-1. FLAP ACTUATOR - Overhaul.

Remove flap actuator access panel, remove flap actuator, overhaul flap actuator, replace flap actuator in airplane, replace flap actuator access panel and run functional test.

## VI. NORMAL SERVICE OPERATIONS

### 95-6-1. WASH JOB - AIRPLANE

This operation includes rinsing off dirty airplane using hose and brush and soaping the lower part of the fuselage and surfaces with a brush to remove oil and grease deposits, and rinsing airplane with hose. Does not include polishing, waxing or extra rubbing other than the wiping of the windshield.

**95-6-2. 50 HOUR INSPECTION**

**Includes periodic 50 hour inspection as recommended in Beech service data.**

**95-6-3. 100 HOUR INSPECTION**

**Includes periodic 100 hour inspection as recommended in Beech service data.**

**VII. KITS AND ACCESSORIES**

**KITS NOTE: Kit installation procedure is detailed in the appropriate Service Publication and on the kit drawing.**

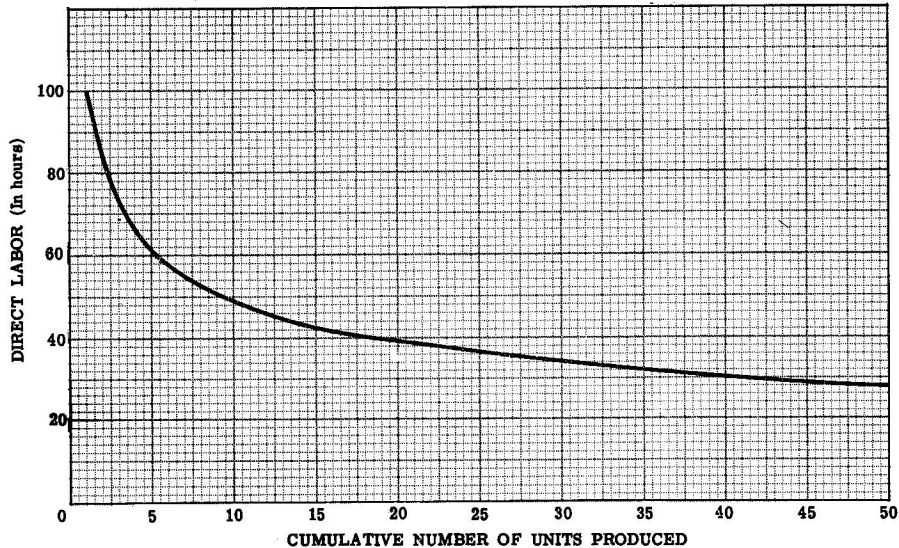


*Part III*

*Experience Curves  
and Estimating Flat Rates*



CUMULATIVE AVERAGE CURVE ON ORDINARY GRAPH PAPER



HOW TO FIGURE PROBLEMS

The following material will show you methods you can use with the experience curve to figure the number of man hours for individual units or groups of units.

1. How to figure the total estimated man hours for a given number of units . . . from a known number one value and an established experience curve.

The total hours required for a given number of units can be found . . . by multiplying the known number one hours . . . by the cumulative per cent value for that number of units on the established experience curve.

Example: Find the total estimated man hours for 50 units, using a number one value of 85 man hours and an 80% experience curve.

$$\begin{aligned} \text{Total Man Hours} &= \text{No. 1 man hours} \times \text{cumulative per cent (Table A)} \\ &= 85 \times 2012.2\% \\ &= 1710.4 \text{ man hours} \end{aligned}$$

2. How to figure the estimated average hours per unit . . . from a known one value and an established experience curve.

The estimated average man hours per unit for a given number of units . . . can be found by multiplying the known number one hours . . . by the cumulative per cent value for the corresponding number of units . . . and dividing the result by the number of units.

Example: Find the average hours per unit for 34 units, using a number one value of 89 hours and a 95% experience curve.

$$\begin{aligned} \text{Average Man Hours} &= \frac{\text{No. 1 man hours} \times \text{cumulative per cent (Table A)}}{\text{Number of Units}} \\ &= \frac{89 \times 2809.5\%}{34} = 78.5 \text{ average man hours per unit} \end{aligned}$$

3. How to figure the estimated man hours for an individual unit from a known number one value and an established experience curve.

The estimated man hours required for a desired unit can be found . . . by multiplying the given number one man hours . . . by the unit per cent value for that particular unit on the established experience curve.

Example: Find the estimated man hours for the 17th unit, using a number one value of 63 man hours and a 65% experience curve.

$$\begin{aligned} \text{Man hours for 17th unit} &= \text{No. 1 man hours} \times \text{unit \% (Table B)} \\ &= 63 \times 17.2 \\ &= 10.8 \text{ man hours} \end{aligned}$$

## THE EXPERIENCE CURVE

Everyone knows the performance of a given task improves with experience. It is not generally realized, however, that performance tends to improve by a constant percentage between doubled quantities of production. This is the theory behind the experience curve.

Here is an example. Let's say the first installation of a rotating beacon required 25 man hours by your organization and you are operating with a known experience curve of 80% (20% improvement between doubled quantities.)

The second beacon installed would take 20 hours (80% of 25 hours)

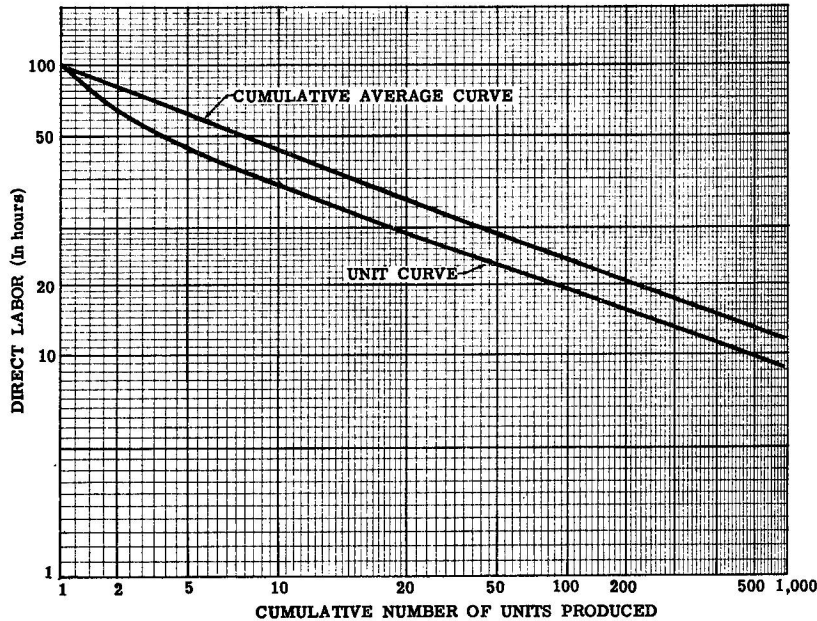
The 4th beacon would take 16 hours (80% of 20 hours)

The 8th beacon would take 12.8 hours (80% of 16 hours)

The 16th beacon would take 10.24 hours (80% of 12.8 hours)

This is assuming, of course, the installations are all similar and the same crew performs the work. A hypothetical experience curve plotted on log-log paper is shown below.

HYPOTHETICAL EXPERIENCE CURVE ON LOG-LOG GRAPH PAPER



The lower line represents the unit curve (the direct labor hours for a particular unit) while the upper line represents the cumulative average curve (the average direct labor hours for all units produced up to a particular point). An experience curve is usually drawn on log-log paper simply because in straight line form it is much easier to project. If the same curve were drawn on ordinary graph paper it would become a true "curve" as indicated on page 10-56.

This curve, of course, more dramatically illustrates the absolute amounts of reduction from one unit to the next. Thus, though the percentage of reduction remains the same, it applies to a progressively diminishing base, and the absolute amounts become less and less until they virtually level off. This reflects the fact that in actual experience the process of learning a given operation eventually approaches a plateau where relatively little further improvement takes place.

### SOME PRACTICAL USES

The experience curve can be a useful tool in flat rating certain operations, such as kit installations which tend to be similar and repetitive in nature. Take for example the rotating beacon mentioned previously. Suppose the Service Manager has just completed the first installation in his shop and found the time to be 25 man hours. From past experience he knows his shop operates on a 90% experience curve on kit installations. (This is a 10% improvement between doubled quantities). He also knows that he can expect to sell about thirty of this particular kit. His problem is to determine the installation charge to the customer. Looking at Table A, Page 10-41, he can see that the total time required for thirty units on a 90% curve will be 2,072.7% of the first unit time. Multiplying 25 hours by 2,072.7% and dividing by thirty will give the average time per unit, 17.27 hours. This time can be used as a basis for the flat rate installation charge of this kit.



TABLE A.  
EXPERIENCE CURVE TABLES  
CUMULATIVE VALUES

Unit	60%	65%	70%	75%	80%	85%	90%	95%
1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2	160.0	165.0	170.0	175.0	180.0	185.0	190.0	195.0
3	204.5	215.5	226.8	238.4	250.2	262.3	274.6	287.2
4	240.5	257.8	275.8	294.6	314.2	334.5	355.6	377.4
5	271.0	294.5	319.5	345.9	373.8	403.1	433.9	466.2
6	297.7	327.4	359.3	393.4	429.9	468.8	510.1	553.8
7	321.6	357.2	396.0	438.0	483.4	532.2	584.5	640.4
8	343.2	384.7	430.3	480.2	534.6	593.6	657.4	726.1
9	363.0	410.2	462.6	520.4	583.9	653.3	729.0	811.1
10	381.3	434.1	493.2	558.8	631.5	711.6	799.4	895.4
11	398.4	456.6	522.3	595.8	677.7	768.6	868.9	979.2
12	414.4	478.0	550.1	631.5	722.7	824.4	937.4	1,062.4
13	429.5	498.3	576.8	666.0	766.5	879.2	1,005.2	1,145.1
14	443.8	517.7	602.6	699.4	809.2	933.1	1,072.1	1,227.4
15	457.4	536.3	627.4	731.9	851.1	986.1	1,138.4	1,309.2
16	470.4	554.1	651.4	763.5	892.0	1,038.3	1,303.0	1,390.7
17	482.8	571.3	675.7	794.4	932.2	1,089.8	1,269.1	1,471.7
18	494.6	587.9	697.3	824.5	971.6	1,140.5	1,333.4	1,552.5
19	506.1	604.0	719.2	854.0	1,010.4	1,190.7	1,397.4	1,632.9
20	517.1	619.5	740.7	882.8	1,048.5	1,240.2	1,460.8	1,713.0
21	527.7	634.6	761.5	911.1	1,086.0	1,289.2	1,523.7	1,792.9
22	537.9	649.2	781.9	938.8	1,123.0	1,337.6	1,586.2	1,872.4
23	547.8	663.5	801.8	966.0	1,159.4	1,385.6	1,648.3	1,951.7
24	557.4	677.3	821.3	992.8	1,195.4	1,433.1	1,710.0	2,030.7
25	566.8	690.9	840.4	1,019.1	1,230.9	1,480.1	1,771.3	2,109.5
26	575.8	704.1	859.1	1,044.9	1,265.9	1,526.6	1,832.3	2,188.1
27	584.6	717.1	877.4	1,070.4	1,300.5	1,572.8	1,892.9	2,266.5
28	593.2	729.6	895.4	1,095.5	1,334.7	1,618.6	1,953.1	2,344.6
29	601.6	741.9	913.1	1,120.2	1,368.5	1,664.0	2,013.1	2,422.6
30	609.7	754.0	930.5	1,144.6	1,402.0	1,709.1	2,072.7	2,500.5
31	617.7	765.8	947.6	1,168.6	1,435.1	1,753.8	2,132.0	2,577.9
32	625.5	777.4	964.4	1,192.4	1,467.9	1,798.1	2,191.8	2,655.3
33	633.1	788.8	980.9	1,215.8	1,500.3	1,842.2	2,249.8	2,732.5
34	640.5	800.0	997.2	1,239.0	1,532.1	1,885.9	2,308.4	2,809.5
35	647.8	811.0	1,013.3	1,271.8	1,564.3	1,929.4	2,366.6	2,886.4
36	654.9	821.7	1,029.1	1,284.4	1,595.8	1,972.5	2,424.6	2,963.1
37	661.9	832.3	1,044.7	1,306.7	1,627.1	2,015.4	2,482.4	3,039.6
38	668.8	842.8	1,060.1	1,328.8	1,658.1	2,058.0	2,539.9	3,116.0
39	675.5	853.0	1,075.3	1,350.7	1,688.8	2,100.4	2,597.2	3,192.3
40	682.1	863.1	1,090.2	1,372.3	1,719.3	2,142.5	2,654.3	3,268.4
41	688.6	873.1	1,105.0	1,393.7	1,749.6	2,184.4	2,711.1	3,344.4
42	694.9	882.9	1,119.6	1,414.9	1,779.6	2,226.0	2,767.8	3,420.2
43	701.2	892.5	1,134.1	1,435.9	1,809.4	2,267.4	2,824.3	3,495.9
44	707.3	902.0	1,148.4	1,456.7	1,839.0	2,308.6	2,880.5	3,571.5
45	713.4	911.4	1,162.5	1,477.3	1,868.4	2,349.6	2,936.6	3,646.9
46	719.3	920.7	1,176.4	1,497.7	1,897.5	2,390.3	2,992.5	3,722.2
47	725.2	929.8	1,190.2	1,518.0	1,926.5	2,430.8	3,038.2	3,797.5
48	730.9	938.8	1,203.8	1,538.0	1,955.2	2,471.2	3,103.7	3,872.5
49	736.6	947.8	1,217.3	1,557.9	1,983.8	2,511.3	3,159.0	3,947.5
50	742.2	956.5	1,230.7	1,577.6	2,012.2	2,551.3	3,214.2	4,022.4
51	747.7	965.2	1,243.9	1,597.2	2,040.4	2,591.1	3,269.2	4,097.1
52	753.2	973.8	1,257.0	1,616.6	2,068.4	2,630.7	3,324.1	4,171.8
53	758.5	982.3	1,270.0	1,635.8	2,096.3	2,670.1	3,378.7	4,246.3
54	763.8	990.7	1,282.8	1,654.9	2,123.9	2,709.4	3,433.3	4,320.8
55	769.0	999.0	1,295.5	1,673.8	2,151.5	2,748.4	3,487.7	4,395.1
56	774.2	1,007.2	1,308.1	1,692.7	2,178.8	2,787.3	3,541.9	4,469.3
57	779.3	1,015.3	1,320.6	1,711.4	2,206.0	2,826.1	3,596.0	4,543.5
58	784.3	1,023.3	1,333.0	1,729.9	2,233.1	2,864.7	3,650.0	4,617.5
59	789.2	1,031.2	1,345.3	1,748.2	2,260.0	2,903.1	3,703.7	4,691.5
60	794.1	1,039.1	1,357.4	1,766.6	2,286.8	2,941.4	3,757.4	4,765.3

TABLE A.

EXPERIENCE CURVE TABLES  
CUMULATIVE VALUES

Unit	(PERCENT)							
	60%	65%	70%	75%	80%	85%	90%	95%
61	799.0	1,046.8	1,369.5	1,784.7	2,313.4	2,979.6	3,810.9	4,839.1
62	803.7	1,054.5	1,381.4	1,802.8	2,339.9	3,017.6	3,864.4	4,912.8
63	808.5	1,062.1	1,393.3	1,820.7	2,366.2	3,055.4	3,917.6	4,986.4
64	813.1	1,069.7	1,405.1	1,838.5	2,392.5	3,093.1	3,970.7	5,059.9
65	817.7	1,077.1	1,416.8	1,856.2	2,418.5	3,130.7	4,023.8	5,133.3
66	822.3	1,084.5	1,428.3	1,873.7	2,444.5	3,168.2	4,076.7	5,206.7
67	826.8	1,091.9	1,439.8	1,891.2	2,470.3	3,205.5	4,129.4	5,279.9
68	831.3	1,099.1	1,451.2	1,908.6	2,496.0	3,242.7	4,182.1	5,353.1
69	835.7	1,106.3	1,462.5	1,925.8	2,521.6	3,279.7	4,234.6	5,426.2
70	840.1	1,113.5	1,473.8	1,943.0	2,547.1	3,316.6	4,287.1	5,499.2
71	844.4	1,120.5	1,484.9	1,960.0	2,572.4	3,353.4	4,339.4	5,572.2
72	848.7	1,127.6	1,496.0	1,977.0	2,597.7	3,390.1	4,391.6	5,645.1
73	852.9	1,134.5	1,507.0	1,993.8	2,622.8	3,426.7	4,443.7	5,717.9
74	857.1	1,141.4	1,517.9	2,010.6	2,647.8	3,463.2	4,495.7	5,790.6
75	861.2	1,148.2	1,528.7	2,027.2	2,672.7	3,499.5	4,547.5	5,863.2
76	865.3	1,155.0	1,539.5	2,043.8	2,697.5	3,535.7	4,599.3	5,935.8
77	869.4	1,161.7	1,550.2	2,060.3	2,722.2	3,571.8	4,651.0	6,008.3
78	873.4	1,168.4	1,560.8	2,076.7	2,746.8	3,607.8	4,702.5	6,080.8
79	877.4	1,175.0	1,571.4	2,093.0	2,771.3	3,643.7	4,754.0	6,153.1
80	881.4	1,181.6	1,581.9	2,109.3	2,795.7	3,679.5	4,805.4	6,225.4
81	885.3	1,188.1	1,592.3	2,125.3	2,820.0	3,715.2	4,856.7	6,297.7
82	889.2	1,194.6	1,602.7	2,141.4	2,844.2	3,750.8	4,907.9	6,369.8
83	893.1	1,201.0	1,613.0	2,157.4	2,868.3	3,786.3	4,958.9	6,442.0
84	896.9	1,207.3	1,623.2	2,173.3	2,892.4	3,821.7	5,009.9	6,514.0
85	900.7	1,213.7	1,633.3	2,189.1	2,916.3	3,857.0	5,060.8	6,586.0
86	904.4	1,219.9	1,643.5	2,204.8	2,940.1	3,892.2	5,111.6	6,657.9
87	908.1	1,226.2	1,653.5	2,220.5	2,963.9	3,927.2	5,162.4	6,729.8
88	911.8	1,232.4	1,663.5	2,236.1	2,987.5	3,962.2	5,213.0	6,801.6
89	915.5	1,238.5	1,673.4	2,251.6	3,011.1	3,997.2	5,263.5	6,873.3
90	919.1	1,244.6	1,683.3	2,267.1	3,034.6	4,032.0	5,314.0	6,945.0
91	922.7	1,250.7	1,693.1	2,282.5	3,058.0	4,066.7	5,364.4	7,016.6
92	926.3	1,256.7	1,702.9	2,297.8	3,081.3	4,101.3	5,414.7	7,088.2
93	929.8	1,262.7	1,712.6	2,313.0	3,104.6	4,135.9	5,464.9	7,159.7
94	933.3	1,268.6	1,722.2	2,328.2	3,127.7	4,170.4	5,515.0	7,231.1
95	936.8	1,274.5	1,731.8	2,343.3	3,150.8	4,204.7	5,565.0	7,302.5
96	940.3	1,280.4	1,741.4	2,358.3	3,173.8	4,239.0	5,615.0	7,373.8
97	943.7	1,286.2	1,750.9	2,373.3	3,196.8	4,273.2	5,664.9	7,445.1
98	947.1	1,292.0	1,760.3	2,388.2	3,219.6	4,307.4	5,714.7	7,516.3
99	950.5	1,297.7	1,769.7	2,403.1	3,242.4	4,341.4	5,764.4	7,587.5
100	953.9	1,303.4	1,779.1	2,417.9	3,265.1	4,375.4	5,814.1	7,658.6
101	957.2	1,309.1	1,788.4	2,432.6	3,287.7	4,409.3	5,863.7	7,729.7
102	960.5	1,314.8	1,797.6	2,447.2	3,310.3	4,443.1	5,913.2	7,800.7
103	963.8	1,320.4	1,806.8	2,461.9	3,332.8	4,476.8	5,962.6	7,871.7
104	967.1	1,326.0	1,816.0	2,476.4	3,355.2	4,510.5	6,012.0	7,942.7
105	970.3	1,331.5	1,825.1	2,490.9	3,377.6	4,544.1	6,061.3	8,013.5
106	973.5	1,337.0	1,834.2	2,505.3	3,399.8	4,577.6	6,110.5	8,084.3
107	976.7	1,342.5	1,843.2	2,519.7	3,422.1	4,611.0	6,159.7	8,155.1
108	979.9	1,347.9	1,852.2	2,534.0	3,444.2	4,644.4	6,208.7	8,225.8
109	983.0	1,353.4	1,861.2	2,548.3	3,466.3	4,677.7	6,257.8	8,296.4
110	986.2	1,358.7	1,870.1	2,562.5	3,488.3	4,710.9	6,306.7	8,367.1
111	989.3	1,364.1	1,878.9	2,576.7	3,510.3	4,744.0	6,355.6	8,437.6
112	992.4	1,369.4	1,887.7	2,590.8	3,532.2	4,777.1	6,404.4	8,508.2
113	995.4	1,374.7	1,896.5	2,604.9	3,554.0	4,810.1	6,453.1	8,578.6
114	998.5	1,380.0	1,905.3	2,618.9	3,575.8	4,843.0	6,501.8	8,649.1
115	1,001.5	1,385.2	1,914.0	2,632.8	3,597.5	4,875.9	6,550.4	8,719.5
116	1,004.5	1,390.4	1,922.6	2,646.7	3,619.1	4,908.7	6,599.0	8,789.8
117	1,007.5	1,395.6	1,931.3	2,660.6	3,640.7	4,941.5	6,647.5	8,860.1
118	1,010.5	1,400.8	1,939.8	2,674.4	3,662.2	4,974.1	6,695.9	8,930.4
119	1,013.4	1,405.9	1,948.4	2,688.1	3,683.7	5,006.7	6,744.2	9,000.6
120	1,016.4	1,411.0	1,956.9	2,701.8	3,705.1	5,039.3	6,792.5	9,070.7

TABLE B

EXPERIENCE CURVE TABLES  
UNIT VALUES (PERCENT)

Unit	60%	65%	70%	75%	80%	85%	90%	95%
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	80.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
3	44.50	50.52	56.82	63.38	70.21	77.29	84.62	92.19
4	36.00	42.25	49.00	56.25	64.00	72.25	81.00	90.25
5	30.54	36.78	43.68	51.27	59.56	68.57	78.30	88.77
6	26.70	32.84	39.77	47.54	56.17	65.70	76.16	87.58
7	23.83	29.84	36.74	44.59	53.45	63.37	74.39	86.59
8	21.60	27.46	34.30	42.19	51.20	61.41	72.90	85.74
9	19.80	25.52	32.28	40.17	49.30	59.74	71.61	85.00
10	18.32	23.91	30.58	38.46	47.65	58.28	70.47	84.33
11	17.08	22.53	29.12	36.96	46.21	56.99	69.46	83.74
12	16.02	21.35	27.84	35.65	44.93	55.84	68.54	83.20
13	15.10	20.31	26.72	34.49	43.79	54.80	67.71	82.71
14	14.30	19.40	25.72	33.44	42.76	53.86	66.96	82.26
15	13.59	18.58	24.82	32.50	41.82	53.00	66.26	81.84
16	12.96	17.85	24.01	31.64	40.96	52.20	65.61	81.45
17	12.39	17.19	23.27	30.85	40.17	51.46	65.01	81.09
18	11.88	16.59	22.60	30.13	39.44	50.78	64.45	80.74
19	11.42	16.04	21.98	29.46	38.76	50.14	63.92	80.42
20	10.99	15.54	21.41	28.84	38.12	49.54	63.42	80.12
21	10.61	15.08	20.87	28.26	37.53	48.98	62.95	79.83
22	10.25	14.65	20.38	27.72	36.97	48.44	62.51	79.55
23	9.92	14.25	19.92	27.22	36.44	47.94	62.09	79.29
24	9.61	13.87	19.49	26.74	35.95	47.47	61.69	79.04
25	9.33	13.53	19.08	26.29	35.48	47.01	61.31	78.80
26	9.06	13.20	18.70	25.87	35.03	46.58	60.94	78.58
27	8.81	12.90	18.34	25.46	34.61	46.17	60.59	78.38
28	8.58	12.61	18.00	25.08	34.21	45.78	60.26	78.15
29	8.36	12.33	17.68	24.72	33.82	45.41	59.94	77.94
30	8.15	12.08	17.37	24.37	33.46	45.05	59.63	77.75
31	7.96	11.83	17.08	24.05	33.10	44.70	59.33	77.56
32	7.78	11.60	16.81	23.73	32.77	44.37	59.05	77.38
33	7.60	11.38	16.54	23.43	32.44	44.05	58.77	77.20
34	7.44	11.17	16.29	23.14	32.13	43.74	58.51	77.03
35	7.28	10.97	16.05	22.86	31.84	43.45	58.25	76.87
36	7.13	10.78	15.82	22.60	31.55	43.16	58.00	76.71
37	6.99	10.60	15.60	22.34	31.27	42.89	57.76	76.55
38	6.85	10.43	15.38	22.10	31.00	42.62	57.53	76.40
39	6.72	10.26	15.18	21.86	30.75	42.36	57.30	76.25
40	6.60	10.10	14.98	21.63	30.50	42.11	57.08	76.11
41	6.48	9.95	14.79	21.41	30.26	41.87	56.87	75.97
42	6.36	9.80	14.61	21.20	30.02	41.63	56.66	75.84
43	6.25	9.66	14.44	20.99	29.79	41.40	56.46	75.70
44	6.15	9.52	14.27	20.79	29.58	41.18	56.26	75.58
45	6.05	9.39	14.10	20.60	29.36	40.96	56.07	75.45
46	5.95	9.26	13.94	20.41	29.15	40.75	55.88	75.33
47	5.86	9.14	13.79	20.23	28.95	40.55	55.70	75.21
48	5.77	9.02	13.64	20.05	28.76	40.35	55.52	75.09
49	5.68	8.90	13.50	19.88	28.57	40.15	55.35	74.98
50	5.60	8.79	13.36	19.72	28.38	39.96	55.18	74.86
51	5.52	8.68	13.22	19.56	28.20	39.78	55.01	74.75
52	5.44	8.58	13.09	19.40	28.03	39.60	54.85	74.65
53	5.36	8.48	12.96	19.25	27.86	39.42	54.69	74.54
54	5.29	8.38	12.84	19.10	27.69	39.25	54.53	74.44
55	5.22	8.29	12.72	18.95	27.53	39.08	54.38	74.34
56	5.15	8.19	12.60	18.81	27.37	38.91	54.23	74.24
57	5.08	8.10	12.49	18.67	27.21	38.75	54.09	74.14
58	5.02	8.02	12.38	18.54	27.06	38.60	53.95	74.05
59	4.95	7.93	12.27	18.41	26.91	38.44	53.81	73.95
60	4.89	7.85	12.16	18.28	26.76	38.29	53.67	73.86

TABLE B

EXPERIENCE CURVE TABLES  
UNIT VALUES (PERCENT)

Unit	60%	65%	70%	75%	80%	85%	90%	95%
61	4.83	7.77	12.06	18.16	26.62	38.14	53.53	73.77
62	4.72	7.69	11.96	18.03	26.48	38.00	53.40	73.68
63	4.72	7.62	11.86	17.91	26.35	37.85	53.27	73.59
64	4.67	7.54	11.76	17.80	26.21	37.71	53.14	73.51
65	4.61	7.47	11.67	17.68	26.08	37.58	53.02	73.42
66	4.56	7.40	11.58	17.57	25.96	37.44	52.90	73.34
67	4.51	7.33	11.49	17.46	25.83	37.31	52.78	73.26
68	4.46	7.26	11.40	17.36	25.71	37.18	52.66	73.18
69	4.41	7.20	11.32	17.25	25.59	37.06	52.54	73.10
70	4.37	7.13	11.23	17.15	25.47	36.93	52.43	73.02
71	4.32	7.07	11.15	17.05	25.35	36.81	52.31	72.95
72	4.28	7.01	11.07	16.95	25.24	36.69	52.20	72.87
73	4.23	6.95	10.99	16.85	25.13	36.57	52.09	72.80
74	4.19	6.89	10.92	16.76	25.02	36.45	51.98	72.72
75	4.15	6.83	10.84	16.66	24.91	36.34	51.88	72.65
76	4.11	6.78	10.77	16.57	24.80	36.23	51.77	72.58
77	4.07	6.72	10.70	16.48	24.70	36.11	51.67	72.51
78	4.03	6.67	10.63	16.39	24.60	36.01	51.57	72.44
79	3.99	6.62	10.56	16.31	24.50	35.90	51.47	72.37
80	3.96	6.57	10.49	16.22	24.40	35.79	51.37	72.31
81	3.92	6.51	10.42	16.14	24.30	35.69	51.27	72.24
82	3.89	6.47	10.36	16.06	24.20	35.59	51.18	72.17
83	3.85	6.42	10.29	15.98	24.12	35.48	51.09	72.12
84	3.82	6.37	10.23	15.90	24.02	35.39	50.99	72.04
85	3.79	6.32	10.17	15.82	23.93	35.29	50.90	71.98
86	3.75	6.28	10.12	15.74	23.84	35.19	50.81	71.92
87	3.72	6.23	10.05	15.67	23.75	35.10	50.72	71.86
88	3.69	6.19	9.99	15.59	23.66	35.00	50.63	71.80
89	3.66	6.14	9.93	15.52	23.57	34.91	50.55	71.74
90	3.63	6.10	9.87	15.45	23.49	34.82	50.46	71.68
91	3.60	6.06	9.82	15.37	23.41	34.73	50.38	71.62
92	3.57	6.02	9.76	15.31	23.32	34.64	50.29	71.56
93	3.54	5.98	9.71	15.24	23.24	34.55	50.21	71.50
94	3.51	5.94	9.65	15.17	23.16	34.46	50.13	71.45
95	3.49	5.90	9.60	15.11	23.08	34.38	50.05	71.39
96	3.46	5.86	9.55	15.04	23.01	34.29	49.97	71.34
97	3.43	5.82	9.50	14.98	22.93	34.21	49.89	71.28
98	3.41	5.79	9.49	14.91	22.85	34.13	49.81	71.23
99	3.38	5.75	9.40	14.85	22.78	34.05	49.73	71.17
100	3.36	5.72	9.35	14.79	22.71	33.97	49.66	71.12
101	3.33	5.68	9.30	14.73	22.63	33.89	49.58	71.07
102	3.31	5.65	9.26	14.67	22.56	33.81	49.51	71.02
103	3.29	5.61	9.21	14.61	22.49	33.73	49.44	70.97
104	3.26	5.58	9.16	14.55	22.42	33.66	49.36	70.92
105	3.24	5.54	9.12	14.49	22.35	33.58	49.29	70.86
106	3.22	5.51	9.07	14.44	22.28	33.51	49.22	70.82
107	3.19	5.48	9.03	14.38	22.22	33.43	49.15	70.77
108	3.17	5.45	8.99	14.32	22.15	33.36	49.08	70.72
109	3.15	5.42	8.95	14.27	22.08	33.29	49.01	70.67
110	3.13	5.39	8.90	14.22	22.02	33.22	48.94	70.62
111	3.11	5.36	8.86	14.16	21.96	33.15	48.88	70.57
112	3.09	5.33	8.82	14.11	21.89	33.08	48.81	70.53
113	3.07	5.30	8.78	14.06	21.83	33.01	48.74	70.48
114	3.05	5.27	8.74	14.01	21.77	32.94	48.68	70.43
115	3.03	5.24	8.70	13.96	21.71	32.87	48.61	70.39
116	3.01	5.21	8.66	13.91	21.65	32.81	48.55	70.34
117	2.99	5.18	8.63	13.86	21.59	32.74	48.49	70.30
118	2.97	5.16	8.59	13.81	21.53	32.68	48.42	70.26
119	2.95	5.13	8.55	13.76	21.47	32.61	48.36	70.21
120	2.94	5.10	8.51	13.71	21.41	32.55	48.30	70.17

LABOR CONVERSION TABLE

Labor Time Hrs. - Tenths	Labor Rates Per Hour													
	\$2.50	\$2.75	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.50	\$6.00	\$6.50
0.1	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.55	.60	.65
0.2	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00	1.10	1.20	1.30
0.3	.75	.825	.90	.975	1.05	1.125	1.20	1.275	1.35	1.425	1.50	1.65	1.80	1.95
0.4	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.20	2.40	2.60
0.5	1.25	1.375	1.50	1.625	1.75	1.875	2.00	2.125	2.25	2.375	2.50	2.75	3.00	3.25
0.6	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00	3.30	3.60	3.90
0.7	1.75	1.925	2.10	2.275	2.45	2.625	2.80	2.975	3.15	3.325	3.50	3.85	4.20	4.55
0.8	2.00	2.20	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00	4.40	4.80	5.20
0.9	2.25	2.475	2.70	2.925	3.15	3.375	3.60	3.825	4.05	4.275	4.50	4.95	5.40	5.85
1.0	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.50	6.00	6.50
1.1	2.75	3.025	3.30	3.575	3.85	4.125	4.40	4.675	4.95	5.225	5.50	6.05	6.60	7.15
1.2	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00	6.60	7.20	7.80
1.3	3.25	3.575	3.90	4.225	4.55	4.875	5.20	5.525	5.85	6.175	6.50	7.15	7.80	8.45
1.4	3.50	3.85	4.20	4.55	4.90	5.25	5.60	5.95	6.30	6.65	7.00	7.70	8.40	9.10
1.5	3.75	4.125	4.50	4.875	5.25	5.625	6.00	6.375	6.75	7.125	7.50	8.25	9.00	9.75
1.6	4.00	4.40	4.80	5.20	5.60	6.00	6.40	6.80	7.20	7.60	8.00	8.80	9.60	10.40
1.7	4.25	4.675	5.10	5.525	5.95	6.375	6.80	7.225	7.65	8.075	8.50	9.35	10.20	11.05
1.8	4.50	4.95	5.40	5.85	6.30	6.75	7.20	7.65	8.10	8.55	9.00	9.90	10.80	11.70
1.9	4.75	5.225	5.70	6.175	6.65	7.125	7.60	8.075	8.55	9.025	9.50	10.45	11.40	12.35
2.0	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	11.00	12.00	13.00
2.1	5.25	5.775	6.30	6.825	7.35	7.875	8.40	8.925	9.45	9.975	10.50	11.55	12.60	13.65
2.2	5.50	6.05	6.60	7.15	7.70	8.25	8.80	9.35	9.90	10.45	11.00	12.10	13.20	14.30
2.3	5.75	6.325	6.90	7.475	8.05	8.625	9.20	9.775	10.35	10.925	11.50	12.65	13.80	14.95
2.4	6.00	6.60	7.20	7.80	8.40	9.00	9.60	10.20	10.80	11.40	12.00	13.20	14.40	15.60
2.5	6.25	6.875	7.50	8.125	8.75	9.375	10.00	10.625	11.25	11.875	12.50	13.75	15.00	16.25
2.6	6.50	7.15	7.80	8.45	9.10	9.75	10.40	11.05	11.70	12.35	13.00	14.30	15.60	16.90
2.7	6.75	7.425	8.10	8.775	9.45	10.125	10.80	11.475	12.15	12.825	13.50	14.85	16.20	17.55
2.8	7.00	7.70	8.40	9.10	9.80	10.50	11.20	11.90	12.60	13.30	14.00	15.40	16.80	18.20
2.9	7.25	7.975	8.70	9.425	10.15	10.875	11.60	12.325	13.05	13.775	14.50	15.95	17.40	18.85
3.0	7.50	8.25	9.00	9.75	10.50	11.25	12.00	12.75	13.50	14.25	15.00	16.50	18.00	19.50
3.1	7.75	8.525	9.30	10.075	10.85	11.625	12.40	13.175	13.95	14.725	15.50	17.05	18.60	20.15
3.2	8.00	8.80	9.60	10.40	11.20	12.00	12.80	13.60	14.40	15.20	16.00	17.60	19.20	20.80
3.3	8.25	9.075	9.90	10.725	11.55	12.375	13.20	14.025	14.85	15.675	16.50	18.15	19.80	21.45
3.4	8.50	9.35	10.20	11.05	11.90	12.75	13.60	14.45	15.30	16.15	17.00	18.70	20.40	22.10
3.5	8.75	9.625	10.50	11.375	12.25	13.125	14.00	14.875	15.75	16.625	17.50	19.25	21.00	22.75
3.6	9.00	9.90	10.80	11.70	12.60	13.50	14.40	15.30	16.20	17.10	18.00	19.80	21.60	23.40
3.7	9.25	10.175	11.10	12.025	12.95	13.875	14.80	15.725	16.65	17.575	18.50	20.35	22.20	24.05
3.8	9.50	10.45	11.40	12.35	13.30	14.25	15.20	16.15	17.10	18.05	19.00	20.90	22.80	24.70
3.9	9.75	10.725	11.70	12.675	13.65	14.625	15.60	16.575	17.55	18.525	19.50	21.45	23.40	25.35
4.0	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	22.00	24.00	26.00
4.1	10.25	11.275	12.30	13.325	14.35	15.375	16.40	17.425	18.45	19.475	20.50	22.55	24.60	26.65
4.2	10.50	11.55	12.60	13.65	14.70	15.75	16.80	17.85	18.90	19.95	21.00	23.10	25.20	27.30
4.3	10.75	11.825	12.90	13.975	15.05	16.125	17.20	18.275	19.35	20.425	21.50	23.65	25.80	27.95
4.4	11.00	12.10	13.20	14.30	15.40	16.50	17.60	18.70	19.80	20.90	22.00	24.20	26.40	28.60
4.5	11.25	12.375	13.50	14.625	15.75	16.875	18.00	19.125	20.25	21.375	22.50	24.75	27.00	29.25
4.6	11.50	12.65	13.80	14.95	16.10	17.25	18.40	19.55	20.70	21.85	23.00	25.30	27.60	29.90
4.7	11.75	12.925	14.10	15.275	16.45	17.625	18.80	19.975	21.15	23.325	23.50	25.85	28.20	30.55
4.8	12.00	13.20	14.40	15.60	16.80	18.00	19.20	20.40	21.60	22.80	24.00	26.40	28.80	31.20
4.9	12.25	13.475	14.70	15.925	17.15	18.375	19.60	20.825	22.05	23.275	24.50	26.95	29.40	31.85
5.0	12.50	13.75	15.00	16.25	17.50	18.75	20.00	21.25	22.50	23.75	25.00	27.50	30.00	32.50
5.1	12.75	14.025	15.30	16.575	17.85	19.125	20.40	21.675	22.95	24.225	25.50	28.05	30.60	33.15
5.2	13.00	14.30	15.60	16.90	18.20	19.50	20.80	22.10	23.40	24.70	26.00	28.60	31.20	33.80
5.3	13.25	14.575	15.90	17.225	18.55	19.875	21.20	22.525	23.85	25.175	26.50	29.15	31.80	34.45
5.4	13.50	14.85	16.20	17.55	18.90	20.25	21.60	22.95	24.30	25.65	27.00	29.70	32.40	35.10
5.5	13.75	15.125	16.50	17.875	19.25	20.625	22.00	23.375	24.75	26.125	27.50	30.25	33.00	35.75
5.6	14.00	15.40	16.80	18.20	19.60	21.00	22.40	23.80	25.20	26.60	28.00	30.80	33.60	36.40
5.7	14.25	15.675	17.10	18.525	19.95	21.375	22.80	24.225	25.65	27.075	28.50	31.35	34.20	37.05
5.8	14.50	15.95	17.40	18.85	20.30	21.75	23.20	24.65	26.10	27.55	29.00	31.90	34.80	37.70
5.9	14.75	16.225	17.70	19.175	20.65	22.125	23.60	25.075	26.55	28.025	29.50	32.45	35.40	38.35



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We suggest the following change in operation Time:

Operation No. \_\_\_\_\_ Time Allowed \_\_\_\_\_  
Time Suggested \_\_\_\_\_

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

We make the above recommendations because of actual experience in our shop. Actual time required to perform the operation in our shop, as shown by at least three time studies, is:

1. Time \_\_\_\_\_ 2. Time \_\_\_\_\_ 3. Time \_\_\_\_\_

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