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FLIGHT TRAINING SYLLABUS

FTS-D212-725

Single Engine Conversion

BELL 212 MODELS

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REVISION RECORD

Revision No.	Issue Date	Description	Date Inserted	Inserted By
0	10.06.04	New Issue		
1	10.07.30	Adjust topics to align with PTM		

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Table of Contents

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CHAPTER 1 – INTRODUCTION

1. INTRODUCTION

1.1. Purpose

This syllabus is used to provide a standardized and structured method of training new and experienced pilots on the EAGLE SINGLE Helicopter. Its use will assure that complete coverage of all of the training exercises are carried out.

1.2. Time References

Column 4 indicates a suggested time allocation for the training. However, each student is unique in his/her experience and may require more or less training. The following minimum training is recommended on this aircraft.

Part One - Ground School

Initial: 14 Hours (includes self study time)
Recurrent: 6 Hours (includes self study time)

Part Two - Flight Training

Initial: 5.0 Hours flight time
Recurrent 1.0 Hours flight time

Definitions:
D1 = Day one
D2 = Day two
D3 = Day three
Teaching Time is in decimal hours for initial training.

Locations:
C - Classroom
S - Self Study
AG - Aircraft ground
AFT - Aircraft flight training
AFL - Aircraft flight line training

Training time in excess of the minimum should not prevent the training pilot from achieving the goal of having the candidate meeting the standard.

1.3. References

The following documents are to be used as references as required:
- PTM-D212-725
- FMS-D212-725-1
- MD-D212-725
- ICA-D212-725

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CHAPTER 2 – GROUND SCHOOL TRAINING

2. GROUND TRAINING

Section	Location	Description of Learning Task	Reference	Time
G1	C	**Introduction**		D1 - 0.4
		a) Learning Materials and Aids		
		b) Pilot Training Manual		
		c) Flight Manual and Supplements		
G2	C	**Certification and Documents**		D1 - 0.3
		a) Review of Bell 212 VFR Flight Manual Format and Contents only.	BHT – FM – 212 VFR	
		b) Premise of Certification, description of flight test certification.		
		c) Familiarization Rotor Craft Flight Manual Supplement FMS-D212-725-1		
		d) Terminology	FMS-D212-725-1 Section 1	
G3	C	**Systems Overview**	PTM-D212-725 Chapter 2; MD-D212-725-1 Sec. 1	D1 - 4.0
		a) General Overview		
		b) Rotor Systems		
		c) Transmission		
		d) Power Plant		
		e) Fuel System		
		f) Electrical System		
		g) Hydraulic System		
		h) Flight Control System		
		i) Pitot-Static System		
		k) Heating System		
		l) Ventilating System		
		m) Lighting System		
		n) Windshield Wipers		
		o) Rotor Brake System		
		p) Emergency Equipment		
G4	C	**Limitations**	PTM-D212-725 Chapter 4; FMS-D212-725-1 Sec. 1	D1 - 1.0
		a) Introduction		
		b) Basis of Certification		
		c) Types of Operations		
		d) Flight Crew		
		e) Configuration		
		f) Weight and Center of Gravity		
		g) Airspeed		
		h) Altitude		

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CHAPTER 2 – GROUND SCHOOL TRAINING

Section	Location	Description of Learning Task	Reference	Time
		i) Maneuvering		
		j) Power Take-off Limits		
		k) Ambient Temperature		
		l) Electrical		
		m) Power Plant		
		n) Transmission		
		o) Rotor		
		p) Hydraulic		
		q) Fuel and Oil		
		r) Rotor Brake		
		s) Heater		
		t) Additional Placards		
		u) Instrument Markings		
G5	C	**Emergency Procedures**	FMS-D212-725-1 Section 3	D2 - 3.0
		a) Engine Failure	Pg. 3 – 4	
		i) Hover	Pg. 3 - 4	
		ii) In Flight	Pg. 3 - 5	
		iii) Air Restart	Pg. 3 - 5	
		b) Main Driveshaft / Clutch Failure	Pg. 3 - 7	
		c) Governor Failures	Pg. 3 - 8	
		d) Compressor Stall	Pg. 3 -10	
		e) Engine Hot Start / Shutdown	Pg. 3 - 11	
		f) Engine Fire	Pg. 3 - 11	
		i) During Start	Pg. 3 - 12	
		ii) Low Altitude Flight	Pg. 3 - 12	
		iii) In Flight	Pg. 3 - 13	
		g) Cabin Smoke or Fire	Pg. 3 - 13	
		h) Cargo Compartment Fire	Pg. 3 - 14	
		i) Tail Rotor Failures	Pg. 3 - 14	
		i) Complete Loss of Thrust	Pg. 3 - 14	
		ii) Fixed Pitch Low Torque	Pg. 3 - 18	
		iii) Fixed Pitch High Torque	Pg. 3 - 18	
		j) Hydraulic Failures	Pg. 3 - 20	
		k) Fuel System Failures	Pg. 3 - 21	
		i) Fuel Boost Pump Failure	Pg. 3 - 22	
		ii) Fuel Filter Blockage	Pg. 3 - 22	
		iii) Fuel Quantity Indicator Failure	Pg. 3 - 22	
		l) Electrical Failures	Pg. 3 - 21	
		m) Communications Failures	Pg. 3 - 23	
		n) Heater Failures	Pg. 3 - 23	
G6	C, S	**Malfunctions**	FMS-D212-725-1; Sec 3	D2 - 1.0
		a) Caution Warning Panel review		

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CHAPTER 2 – GROUND SCHOOL TRAINING

Section	Location	Description of Learning Task	Reference	Time
G7	C	**Performance**	PTM-D212-725 Chapter 5 FMS-D212-725-1, Sec. 4	D2 - 2.0
		a) Engine Operation Check Charts		
		b) Maximum Power Check		
		c) Power Assurance Checks		
		d) Hover Ceiling Charts		
	S	e) Takeoff Distance		
		f) Rate of Climb - Maximum		
	S	g) Landing Distance		
		h) Height Velocity		
		i) Operation vs Allowable Wind		
		j) Airspeed System Calibration		
G8	S	**Knowledge Testing**	PTM-D212-725, Chapter 6.	D2 - 1.0

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3. FLIGHT TRAINING

Section	Location	Description of Learning Task	Time
F1	AFL	**Helicopter Pilots Pre-Flight Inspection**	D3 - 1.0
F2	AFL	**Passenger Briefing**	D3 - 0.1
		a) Approaching Helicopter - Review	
		b) Door Operation - Review	
		c) Seatbelt Operation- Review	
		d) Emergency Equipment- Review	
		f) Life Jacket- Review	
		g) Emergency Engine Shut Down- Review	
		h) Aircraft on side - Review	
F3	AGT	**Use of Checklist, Location, Memory Items, Critical Actions, Reference.**	D3 - 0.1
F4	AGT	**CRM - Location of Equipment, Documents, Expected Single Pilot Actions, Use of Left Seat Persons**	D3 - 0.1
F5	AFT	**Engine Starting / Malfunctions**	D3 - 0.2
		a) Normal Start Parameters - Review, Practice	
		b) Hot Start - Review Limitations	
		c) Minimum Voltage/N1 for Rotor turning - Review	
		d) Subsequent Starts - Practice	
		e) Use of External Power - Review	
F6	AFT	**Hover Maneuvering in Ground Effect**	D3 - 0.2
		a) Cross Wind Limitations - Discuss	
		b) Loss of Tail Rotor Effectiveness - Discuss	
		c) Hover Characteristics - low hover, medium, high	
		d) Use of Frictions	
		e) Sand Filters - Use of effect.	
		f) Dynamic Roll Over - Discuss	
		g) Ground Resonance - Spring Absorbers - Discuss	
F7	AFT	**Hover Maneuvering OGE**	D3 - 0.2
		a) Height of Ground Effect - Discuss	
		b) Loss of Visual Clues - Practice	
		c) Power Management - Practice	
		d) Settling with Power - Discuss	
		e) LTE - Practice if possible	
		f) Height Velocity Curves - Discuss	
F8	AFT	**Hover Taxi / Eng Fail in Hover**	D3 - 0.1

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CHAPTER 3 – FLIGHT TRAINING

Section	Location	Description of Learning Task	Time
		a) Downwind Hover - Practice	
		b) Translational Lift - Discuss, Practice	
		c) Low Hover Engine Failure (1 -2 feet) - Brief, Demonstrate (Initial), Practice	
		d) High Hover Engine Failure (10 to 15 feet) Brief, Demonstrate (Initial), Practice Note: Success must be achieved in this exercise before any other engine failure/autorotation may be attempted.	
F9	AFT	**Normal Take-off and Landing**	D3 - 0.1
		a) Height Velocity - Practice profile	
		b) Shallow Approach - Practice	
		c) Steep Approach - Practice	
F10	AFT	**Gross Weight Take-off and Landing**	D3 - 0.1
		a) Use of Ground Effect - Practice	
		b) Engine Management - Practice (Restricted Power)	
F11	AFT	**No Hover Take-off and Landing**	D3 - 0.1
		a) May be combined with exercise F8	
		b) Touchdown Area Determination - Discuss and Practice	
F12	AFT	**Circuits**	D3 - 0.1
		a) Accuracy - Practice	
		b) Radio Procedures - Practice	
		c) May be combined with exercise F8 and F9	
F13	AFT	**Off Level - Slope Landings**	D3 - 0.2
		a) Left Side Low - Demonstrate (Initial), Practice	
		b) Right Side Low - Demonstrate (Initial), Practice	
		c) Toe In / Upslope - Demonstrate (Initial), Practice	
		d) Downslope - T/R Caution, Demonstrate (Initial), Practice	
		e) Slope Limits - Discuss	
		f) Effect of Wind	
		g) Control Positions when fully landed, Review and Practice	
F14	AFT	**Rejected Take-off / Wire Avoidance**	D3 - 0.1
		a) Simulate sudden obstacle abort take-off - Practice abort	
		b) On Landing simulate wire in path - Practice aborted landing.	
		c) Identifying wire hazards - Discuss	
		d) Hazards of low flying – Main Rotor Response Time	
F15	AFT	**Confined Areas**	D3 - 0.3
		a) Selection - Practice	

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CHAPTER 3 – FLIGHT TRAINING

Section	Location	Description of Learning Task	Time
		b) Wind Determinations - Discuss and Practice	
		c) Recce - High, Low, Obstacle, Hazards - Discuss and Practice	
		d) Power Determination - Practice	
		e) Maneuvering - Practice	
		f) Towering Take-off - Practice	
		g) Aborted Take-off/Landing - Practice	
		h) Minimum Power Take-off - Practice	
		i) Pinnacle/Platform Operations.	
		i) Optical Illusion	
F16	AFT	**Autorotation - Straight Ahead**	D3 - 0.2
		a) Area Scan - H.A.S.E.L. Brief.	
		b) RPM, A/S Management - Demonstrate (Initial), Practice	
		c) Maneuvering to attain landing zone - Practice	
		Note: Record number done	
F17	AFT	**Autorotation 180°**	D3 - 0.2
		a) Pattern and Entry - Describe	
		b) RPM, A/S management - Practice	
		c) Descent Rate - Review	
		d) Make desired landing zone.	
		Note: Record number done	
F18	AFT	**Autorotation Range Variation**	D3 - 0.1
		a) Establish Entry Points - Describe	
		b) RPM, A/S management	
		Note: Record number done	
F19	AFT	**Autorotation (Surprise)**	D3 - 0.1
		a) May be Hovering, Straight, 180 Note: Must be done over safe terrain	
F20	AFT	**Engine Failure HOGE (100 feet) OPTIONAL**	D3 - 0.1
		a) Importance of Maneuver - Describe	
F21	AFT	**Hydraulic Failures**	D3 - 0.2
		a) Symptoms/Indication - Review and Simulate	
		b) Cruise - Airspeed Management - Practice	
		c) Identification - Practice	
		d) Approach - Practice	
		e) Landing - Practice	

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CHAPTER 3 – FLIGHT TRAINING

Section	Location	Description of Learning Task	Time
		f) Hydraulic System Failure - Describe and Simulate	
		g) Use of HDY Switch/Circuit Breaker	
F22	AFT	**Fuel Boost Pump Failures**	D3 - 0.3
		a) Identification - Practice	
		b) Altitude Restrictions - Review	
F23	AFT	**Fuel Filter Malfunctions**	D3 - 0.1
		a) Primary Indications Flt Light - Review	
		b) Secondary Indications Boost Pump Fail - Review practice	
		c) Resultant Eng Fail - Practice	
F24	AFT	**Low Fuel Indications**	D3 - 0.1
		a) Indications - Review	
		b) Time Remaining - Review	
F25	AFT	**Engine Chip/Temp/Pressure**	D3 - 0.2
		a) Indications - Review	
		b) Engine Shutdown in Flight - Practice	
		c) Engine Start in Flight - Practice	
F26	AFT	**Engine Governor Failures**	D3 - 0.1
		a) Identification - Review, Practice	
		b) Symptom 1 - Review, Practice	
		c) Symptom 2 - Review, Practice	
F27	AFT	**Engine Fire**	D3 - 0.1
		a) Critical Actions - Review	
		b) Identification and Securing Engine - Practice	
F28	AFT	**Air Restart**	D3 - 0.1
		a) Can be done in conjunction with other appropriate emergency	
F29	AFT	**Cabin Fire / Baggage Fire**	D3 - 0.1
		a) Electrical Isolation - Practice	
		b) Use of Fire Extinguisher - Practice	
		c) Use of Ventilation - Discuss and Practice	
F30	AFT	**Main Gearbox Chip / Temp / Pressure**	D3 - 0.1
		a) Identification - Review	
		b) Critical Actions	
F31	AFT	**Tail Rotor Gearbox Chip**	D3 - 0.1
		a) Secondary indications - Review	

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CHAPTER 3 – FLIGHT TRAINING

Section	Location	Description of Learning Task	Time
		b) Anticipation of total failure - Review and Practice	
F32	AFT	**Tail Rotor Failures Cruise**	D3 - 0.3
		a) Indications/Symptom - Simulate, Practice	
		b) Loss of Drive Shaft - Simulate, Practice	
		c) Jammed Control - Simulate, Practice	
		d) Airborne Controllability Assessment	
F33	AFT	**Tail Rotor Failures Hover**	D3 - 0.2
		a) Loss of Drive - Simulate, Practice	
		b) Control Failure - Simulate Practice	
		c) Use of Collective and Wind - Practice	
		d) Fixed Pitch at High Power - Simulate, Practice	
		e) Fixed Pitch Low Power - Simulate, Practice	
F34	AFT	**Battery Warning**	D3 - 0.1
		a) Indication - Review	
		b) Odor - Review	
		c) Critical Actions - Practice	
F35	AFT	**Electrical System Failures**	D3 - 0.2
		a) Generator Fail (Single) - Simulate, Practice	
		b) Effect of Total Electrical Loss on Boost Pumps - Review	
		c) Battery Endurance - Review	
F36	AGT	**Vortex Ring State** **Warning** *This is an advanced training exercise - Training Pilot must be approved by Chief Pilot. Under no circumstances is this exercise to be initiated below 700 feet AGL.*	D3 - 0.1
		a) Indications - Review	
		b) Entry - Demonstrate, Practice	
		c) Recovery - Demonstrate, Practice	
F37	AFT	**Emergency Over Water**	D3 - 0.1
		a) Airspeeds for Ditching - Review	
		b) Float Deployment - simulate, Practice (if equipped.)	
		c) Ditching, Egress - Review	
F38	AFT	**Aircraft Shut Down Procedures.**	D3 - 0.1
		a) Shutdown in High Winds	
		b) Use of Rotor Brake	
		c) Eng. Fire after shutdown.	

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