

Doc. no: 0030-0001 V01	Doc. Type: Course Outline	Page: 1 of 5
Created: 2012-11-29	Description: Inspection of Blades Level 1	Language: GB
Reviewed: 2019-27-03	Blade type: All types in service	Issued by: OS

Attendant profile

Attendant profile: WTG Service technicians, Site Managers, Wind farm owners / technicians

Course duration

3 days, 21 lessons

Pre-requisites for participation

None

Course outcome

To qualify participant to perform blade service inspection on all types of WTG blades, according to Global Blade Service Standard.

Objectives

After the training the participant has achieved knowledge for:

- Describe the general construction of WTG blades
- Describe health risk involved when handling polyester, epoxy and isocyanates
- Use correct terms for blade communication
- Recognize different types of defects and damages
- Assess and categorize defects and damages

And have achieved the following competences:

- Carry out General Visual Inspection, from ground level
- Carry out Close Visual inspection, use of hands, tape measures, photo cards, off rope or crane
- Carry out Detailed Visual Inspection. Use of tools to further inspection of damage by sanding away damaged paint/gelcoat, and visually inspect laminate, and bonded joints
- Carry out minor cosmetic repair of surface coatings
- Fill in blade status report

Training method

Theoretical training
Practical exercises

Success criteria

Minimum 80% correct answers on theoretical test
Approval of practical test

Training modules

1 Training information

- Practical information on the training course
- Presentation of participants
- Reason for training
- Objectives for training course
- Success criteria

2 Blade construction

- Materials for blades
- Stress on blades
- Various blade structures
- Test of materials and blades
- Lightning protection system LPS
- Terms and definitions

3 Build process of blades

- Wet lay up of laminate by hand
- Vacuum consolidation
- Infusion
- Prepreg

4 Quality of laminate

- Quality terms
- Defects from production

5 Health and safety handling materials for blades

- Health risk from polyester
- Health risk from epoxy
- Health risk from polyurethane
- Health risk from dust
- Personnel protective equipment
- Handling and storing chemicals on site
- Handling of waste

6 Blade damages

- Statistic of blade damages
- Root causes for damages

7 Service work instruction

- Reason for global standard
- Global blade service standard
- Three steps:
 - Standard documentation
 - Blade service training
 - Global blade service certification

8 Inspection from ground

- Photo equipment
- Photo inspection
- Assessing photos

9 Inspection from height

- Access to blade external and internal
- Surface inspection visual
- Measure electrical resistance of lightning protection system
- Investigating external damages
- Internal inspection visual
- Investigating internal damages

10 Categorization of damages

- Damage versus risk for blade failure
- Defining category of damage
- Time frame for development of damage

11 Blade status report

- Purpose for blade status report
- Filling in report template

12 Cosmetic repair

- Gelcoat repair
- Fillers
- Paint repair
- Temporary repair

13 Practical exercises

- General Visual Inspection
- Close Visual inspection
- Detailed Visual Inspection of damage
- Gelcoat repair
- Paint repair
- Temporary repair

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14 Tests

- Theoretical test representing objectives for training course
- Practical test representing skill level for training course