TBM 1: Prepare Assembly Aid Tray for Force Fitting

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____   □ **Timeout**

Achievements

	yes	no
The robot correctly identifies the assembly aid tray identifier: Comment: _____	□	□
The robot correctly grasps the assembly aid tray: Comment: _____	□	□
The robot correctly grasps the first bearing box: Comment: _____	□	□
The robot correctly grasps the second bearing box: Comment: _____	□	□
The robot inserts the first bearing box into the aid tray: Comment: _____	□	□
The robot inserts the second bearing box into the aid tray: Comment: _____	□	□
The robot correctly deliver the tray to the force fitting station: Comment: _____	□	□
The robot completely processes the first bearing (from identifying to delivering): Comment: _____	□	□
The robot completely processes the second bearing (from identifying to delivering): Comment: _____	□	□
The robot cooperates with CFH and Networked Devices throughout the task: Comment: _____	□	□
Benchmarking data is delivered appropriatly: Comment: _____	□	□

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot drops an object (the object touches the ground): ☐ ☐ ☐ ☐ ☐

The robot stops working: ☐

Disqualifying Behaviors

The robot damages or destroys the objects requested to manipulate: ☐

The robot damages the test bed: ☐

Comment: _____

WARNING: A disqualifying behavior discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Team leader signature: _____

Referee signature: _____

TBM 2: Plate Drilling

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____ ☐ **Timeout**

Notes on TBM 2 to teams/referee/organizer:
The cover plates are organized on the conveyor belt in the same order for all teams in one benchmark slot. The reason is that processing an unusable cover plate is "simpler" than processing a faulty one. As such the only way to ensure fairness is to have the same order of the cover plates.

Achievements

Set 1 Processing unusable cover plate	plate 1	plate 2
The robot picks up an unusable cover plate from the conveyor belt exit ramp:	☐	☐
The robot placse an unusable cover plate inside the trash box container:	☐	☐
The robot collects the achievements for **Set 1**:	☐	☐

Comment: _____

Set 2 Processing faulty plates	plate 1	plate 2
The robot picks up a faulty cover plate from the conveyor belt exit ramp:	☐	☐
The robot inserted a faulty cover plate into the drilling machine:	☐	☐
The robot operates the drilling machine to fix a faulty cover plate:	☐	☐
The robot collects the achievements for **Set 2**:	☐	☐

Comment: _____

Set 3 Processing corrected plates	plate 1	plate 2
The robot picks up a perfect cover plate in the drilling machine:	☐	☐
The robot places a perfect cover plate inside the cover plate box:	☐	☐
The robot collects the achievements for **Set 3**:	☐	☐

Comment: _____

The robot cooperates with CFH and Networked Devices throughout the task: ☐
Comment: _____
Benchmarking data is delivered appropriately: ☐
Comment: _____

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot drops an object (the object touches the ground): ☐ ☐ ☐ ☐ ☐

The robot stops working: ☐

Disqualifying Behaviors

The robot damages or destroys the objects requested to manipulate: ☐

The robot damages the test bed: ☐

Comment: _____

WARNING: A disqualifying behavior discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Team leader signature: _____

Referee signature: _____

TBM 3: Fill a Box with Parts for Manual Assembly

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Duration: _____ ☐ **Timeout**

Achievements

	part 1	part 2	part 3	part 4	part 5	container
The robot picks up a required object (also the container) from its storage location:	☐	☐	☐	☐	☐	☐

Comment:_____

| The robot places required objects into the container: | ☐ | ☐ | ☐ | ☐ | ☐ | |

Comment:_____

| The robot has correctly filled the container and the container is on top of the designated workstation: | | | | | | ☐ |

Comment:_____

	yes	no
The robot communicates with the CFH throughout the test:	☐	☐

Comment: _____

| Benchmarking data is delivered appropriately: | ☐ | ☐ |

Comment: _____

Penalized Behaviors

The robot bumps into obstacles in the test bed: ☐ ☐ ☐ ☐ ☐

The robot drops an object (the object touches the ground): ☐ ☐ ☐ ☐ ☐

The robot stops working: ☐

Disqualifying Behaviors

The robot damages or destroys the objects requested to manipulate: ☐

The robot damages the test bed: ☐

Comment: _____
WARNING: A disqualifying behavior discards all other achievements in the current task. Use it only when it is really necessary (e.g. cheating).

Team leader signature: _____

Referee signature: _____

FBM 1: Object Perception

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Objects:

- EM-01: aid tray orange
- EM-02: cardbox black
- AX-01: bearing box type A
- AX-16: bearing box type B
- AX-02: bearing
- AX-03: axis
- AX-09: motor

	Object 1	**Object 2**	**Object 3**	**Object 4**	**Object 5**
Instance					
Score					
	Object 6	**Object 7**	**Object 8**	**Object 9**	**Object 10**
Instance					
Score					

Overall score: _____

Team leader signature: _____

Referee signature: _____

FBM 2: Manipulation

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Objects:

- EM-01: aid tray orange
- EM-02: cardbox black
- AX-01: bearing box type A
- AX-16: bearing box type B
- AX-02: bearing
- AX-03: axis
- AX-09: motor

Run 1 Duration: _____ ☐ Timeout

Object: _____, ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 2 Duration: _____ ☐ Timeout

Object: _____, ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 3 Duration: _____ ☐ Timeout

Object: _____, ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 4 Duration: _____ ☐ Timeout

Object: _____, ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Run 5 Duration: _____ ☐ Timeout

Object: _____, ☐ Success, ☐ Dropped, ☐ Missed

Comments: _____

_____

Team leader signature: _____

Referee signature: _____

FBM 3: Control

Team name: _____

Referee I: _____, **Referee II:** _____

Date and time: _____

Run 1 Duration: _____ □ Timeout,   Finished complete path: □ Yes   □ No

Area deviation: _____, Constant deviation: _____, Score: _____

Comments: _____

Run 2 Duration: _____ □ Timeout,   Finished complete path: □ Yes   □ No

Area deviation: _____, Constant deviation: _____, Score: _____

Comments: _____

Run 3 Duration: _____ □ Timeout,   Finished complete path: □ Yes   □ No

Area deviation: _____, Constant deviation: _____, Score: _____

Comments: _____

Run 4 Duration: _____ □ Timeout,   Finished complete path: □ Yes   □ No

Area deviation: _____, Constant deviation: _____, Score: _____

Comments: _____

Run 5 Duration: _____ □ Timeout,   Finished complete path: □ Yes   □ No

Area deviation: _____, Constant deviation: _____, Score: _____

Comments: _____

Overall score: _____

Team leader signature: _____

Referee signature: _____