# Mechanical Sciences CONDUCTING A BICYCLE RODEO

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## INTRODUCTION

## **Objectives of the Rodeo**

The 4-H Bicycle Rodeo provides 4-H members with the opportunity to actually demonstrate, before their peers and a panel of judges, their knowledge of bicycle maintenance, safety and operation.

## Specific Goals of the Rodeo

- Develop the skills, leadership and citizenship of 4-H members.
- Emphasize safety practices.
- Maintain and increase interest of 4-H bicycle club members.
- Provide 4-H members with an opportunity to demonstrate their: bicycle driving skills; knowledge of traffic rules which pertain to bicycling; ability to identify bicycle parts and their functions; and capability of diagnosing mechanical and safety problems on a bicycle.
- Provide a climax event for the 4-H bicycle program.
- Stimulate the desire to complete the 4-H bicycle program.
- Provide an opportunity to inform the public of the 4-H bicycle program and what 4-H bicycle members are doing.

## THE RODEO

## Participation

#### County

Every county should conduct a county rodeo prior to the state bicycle rodeo to determine their entries in the state event. **Note**: Every 4-H bicycle member should be encouraged to participate in the county bicycle rodeo.

#### State

All counties may send one contestant per division (junior and senior) to the state 4-H bicycle rodeo.

## Planning

#### County

- The county rodeo should be organized by the county bicycle leaders and/or Extension youth development agent.
- Holding the county rodeo during the county fair or other community event could create considerable spectator interest and public support of the program.

## State

- The state bicycle rodeo will be organized by the state 4-H Mechanical Science Committee, University of Wisconsin-Madison Biological Systems Engineering Department and State 4-H Office.
- The state bicycle rodeo will be held at a site to be arranged by the state 4-H Youth Development staff.

## **Responsibilities of the Rodeo Organizers**

- Select the date for the rodeo.
- Acquire the rodeo site. The rodeo site should be a plot of level, preferably paved, ground approximately 150 by 165 feet. **Note**: A smaller plot of land may be used if the rodeo courses are assembled and disassembled following each event.
- Notify all participants of the time, date and place for the rodeo.
- Acquire the equipment listed below.
- Obtain judges. There should be a minimum of two judges per division. **Note**: Parents of participating youths should *not* be judges.
- Publicize the rodeo and its results in the news media (newspaper, radio, etc.).

## **Equipment Needed**

- Stop watches. A minimum of four two each for each obstacle course "2" (Balance Test – Straight Line) and obstacle course "4" (Figure Eight Balance Test). Note: Only two stop watches would be needed if obstacle courses "2" and "4" are run at different times.
- 2. Clipboards and pencils. One clipboard per judge plus enough pencils so that the contestants may take the written, parts identification and maintenance-safety check examinations.
- 3. Materials to mark the course.
- Plastic or rubber traffic cones. Local police departments, electric utilities and highway departments may be able to provide cones. **Note**: If cones are unavailable, large sponges may be used.
- Masking tape. Needed if courses are set up on paved surfaces.
- Chalk. Needed if courses are set up on paved surface.
- Lime. Needed if courses are set up on unpaved surface.
- Ball of twine. Needed if courses are set up on unpaved surface.
- Fence staples or nails. Needed if courses are set up on unpaved surface.



- Surveyor's tape. May be used on all surfaces. Use in place of twine or masking tape.
- Traffic signs. Stop, yield and one-way.
- Lettered cards for scanning exercise (Skill Event #1). Four poster boards with the letters A, B, C, and D placed on different boards.
- Measuring tapes and yardsticks or rulers.
- One set of official scorecards for each contestant. **Note**: The scorecards on later pages may be reproduced.
- Written examinations. One copy per contestant will be required.
- Public address system (optional).

## **OFFICIAL RULES**

Note: The rules listed below will be followed at the state 4-H bicycle rodeo. County 4-H bicycle rodeos may be run in any manner deemed appropriate by county officials.

## **Junior Division**

#### General Rules

- The driving order should be determined by allowing the contestants to draw numbers
- In case of a tie score for a trophy award, the contestants' written exam scores will be used to break the tie.

#### Eligibility

The contestants must be in grades 3 - 8.

#### Scoring

Contestants will be scored on:

- Quiz questions on written examination.
- Bicycle operation on obstacle courses.
- Maintenance and safety check of a bicycle.
- Bicycle parts, tools and accessories identification.
- Safety while at the rodeo.

#### Written Examination

- Quiz questions will be drawn from the "The Best Bicyclist on Earth" manual and "Wisconsin Bicycle Drivers Handbook." Both publications are available from the county Extension office.
- 2. The written exam will consist of 15 questions.
- 3. Each question will be worth four points. A total of 60 penalty points will be possible.

4. Each contestant will be given a maximum of 30 minutes to complete the exam.

#### Maintenance - Safety Check

- 1. A bicycle will be bugged with five maintenance and/or safety problems.
- 2. The bicycle used for the maintenance safety check may be either new or used. If a used bicycle is used, numerous maintenance and safety hazards may already exist on the bicycle.
- 3. The maintenance safety check will be conducted in a secluded area away from the rodeo and will be given to only one contestant at a time.
- 4. Contestants will *not* be allowed to inspect the bicycle prior to the maintenance safety check.
- 5. During the examination, contestants will *not* be allowed to sit on the bicycle.
- Contestants using the Maintenance Safety Check Scorecard will identify the maintenance and/or safety hazards.
- A penalty of five points will be given for each maintenance and/or safety item missed or incorrectly listed. A total of 25 penalty points will be possible.
- 8. A time limit of five minutes will be imposed.

#### Parts, Tools and Accessories Identification

- Ten items selected from the Junior Division Parts, Tools and Accessories Identification Scorecard (page 11) will be identified with a number.
- Contestants, using Junior Division Parts, Tools and Accessories Identification Scorecard (page 10), will identify the tagged items by writing the item's identification number next to the item's name on the scorecard.
- Each item incorrectly identified will result in a five point penalty. A total of 50 penalty points will be possible.
- A time limit of 30 minutes will be imposed.

#### Bicycles

- 1. Contestants are encouraged to use their own bicycle during the rodeo.
- 2. Bicycles will be available for use by contestants unable to provide their own.
- 3. Official judges may deem a bicycle unfit for use in the rodeo because of maintenance and/or safety hazards.

#### Skill Events

For directions on obstacle course set up and operating procedure see later pages.

## **Senior Division**

#### General Rules

- The driving order should be determined by allowing the contestants to draw numbers.
- In case of a tie score for trophy awards, the contestants' written exam scores will be used to break the tie.

#### Eligibility

The contestants must be in grades 9 - 13.

#### Scoring

- 1. The penalty scoring system will be used.
- 2. Unanswered or incorrectly answered questions and violations will draw penalty points for contestants.
- 3. The contestant with lowest score or number of penalty points will be the winner.
- 4. Contestants will be scored on:
  - Quiz questions on the written examination.
  - Bicycle operation on obstacle courses.
  - Maintenance and safety check of a bicycle.
  - Bicycle parts, tools and accessories identification.
  - Safety while at the rodeo.

#### Written Examination

Quiz questions will be drawn from the "The Best Bicyclist on Earth" manual and the "Wisconsin Bicycle Drivers Handbook." Both publications are available from the county Extension office.

- 1. The written exam will consist of 25 questions.
- 2. Each question will be worth four points. A total of 100 penalty points will be possible.
- 3. Each contestant will be given a maximum of 30 minutes to complete the exam.

#### Maintenance - Safety Check

- 1. A bicycle will be bugged with 10 maintenance and/or safety problems.
- 2. The bicycle used in the maintenance safety check may be either new or used. If a used bicycle is used, numerous maintenance and safety hazards may already exist on the bicycle.

- 3. The maintenance safety check will be conducted in a secluded area away from the rodeo and will be given to only one contestant at a time.
- 4. Contestants will *not* be allowed to inspect the bicycle prior to the maintenance safety check.
- 5. During the examination, contestants will *not* be allowed to sit on the bicycle.
- Contestants using the Maintenance Safety Check Scorecard will identify the maintenance and/or safety hazards.
- A penalty of five points will be assessed for each maintenance and/or safety item missed or incorrectly listed. A total of 50 penalty points will be possible.
- 8. A time limit of five minutes will be imposed.

#### Parts, Tools and Accessories Identification

- Twenty items consisting of bicycle parts, tools, accessories and personal protective equipment will be identified with a number.
- Contestants, using the Senior Division Parts, Tools and Accessories Identification Scorecard (page 11), will identify the tagged items by writing the item's common name in the blank corresponding to the item's number.
- Each item incorrectly identified will result in a five point penalty. A total of 100 penalty points will be possible.
- A time limit of 30 minutes will be imposed.

#### Bicycles

- 1. Contestants are encouraged to use their own bicycle for the obstacle courses.
- 2. Bicycles will be provided for use by contestants unable to provide their own.
- 3. Official judges may deem a bicycle unfit for use in the rodeo because of maintenance and/or safety hazards.

#### Skill Events

For directions on course set up and operating procedure see later pages.

## **SKILL EVENTS**

Contestants will be required to maneuver a bicycle through two different courses. Event #1 will simulate driving a bicycle in traffic conditions. Event #2 will consist of several different obstacle courses that will test the contestants' ability to handle a bicycle.

#### Skill Event #1

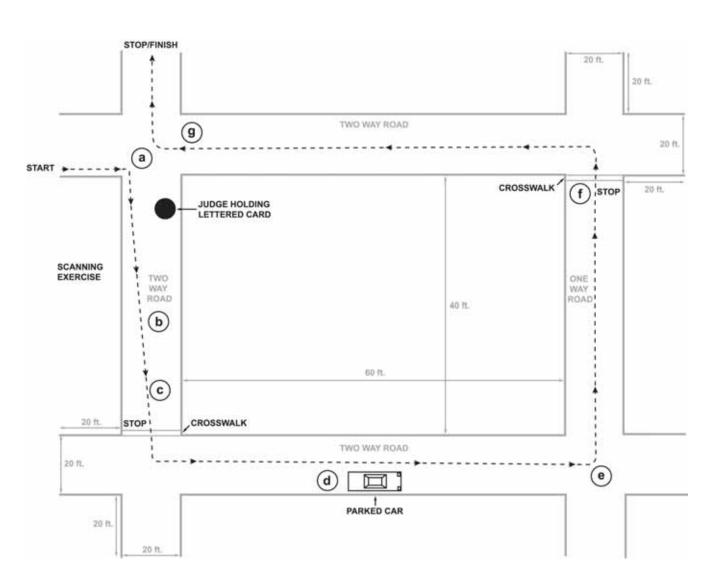
Contestants will be expected to maneuver a bicycle through a course that will represent driving a bicycle in traffic conditions (see Image 1). Contestants will be judged on safety procedures and correct biking practices.

#### Scoring Instructions

**a. Right Turn** - Bikers should signal by giving the signal for a right turn (left arm pointing upward at the elbow). Before turning, biker needs to scan for traffic (See Image 2).

**b. Scanning Exercise** - The biker's name will be yelled by a judge at which time the biker will be expected to scan to his/ her rear and identify the letter on the card. The biker should look over his/her left shoulder.

**c. Stop Exercise -Left Turn -** Draw in or use an existing crosswalk and instruct bikers to stop before the crosswalk, yielding the right of way to any pedestrians. Before moving to the center of the road, the biker should signal a left turn (left arm fully extended parallel to the ground), and scan to the rear for motor vehicles. After getting to the road's center, the biker should signal his/her intention to stop (left arm bent down at the elbow). Before turning, the biker should signal a right turn (left arm bent upward at elbow in a right angle) before moving from center to right hand side of the road (see Image 3).

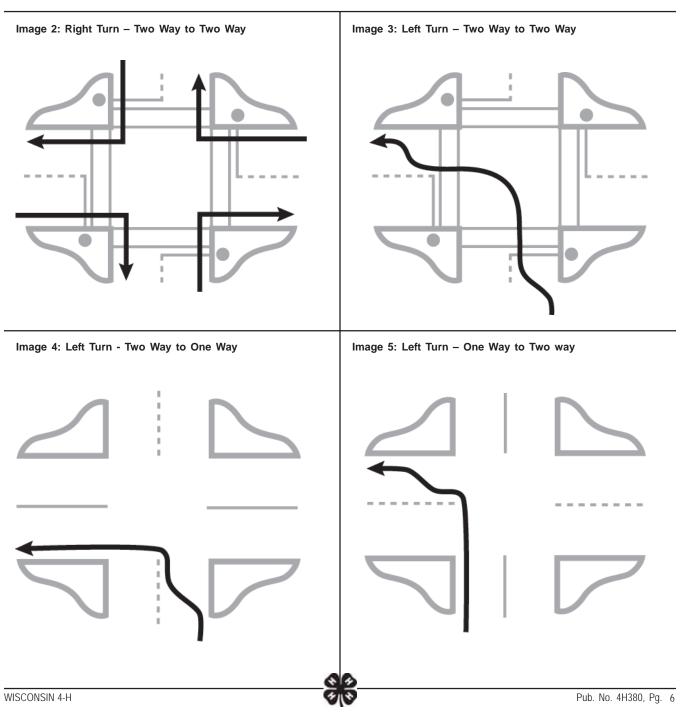


#### Image 1: Course Outline

**d. Parked Car** - Biker should ride in a straight line and stay at least three feet from the parked vehicles when passing them. Biker should *not* weave in and out of parked vehicles.

**e. Left Turn** - Biker should signal a left turn by fully extending left arm parallel to the ground. Left turn signal must be given before moving to the center of two-way street. An additional left turn signal may be given after moving to center of street but prior to making the left turn. **Note**: The second left turn signal is optional and the biker will *not* be penalized for failing to give the signal. Before turning, the biker should scan for traffic (see Image 4). **f. Stop – Left Turn** - Draw in or use an existing crosswalk and instruct bikers to stop before the crosswalk, yielding right of way to any pedestrians. The biker should signal a left turn (left arm extended parallel to ground), his/her intention to turn left at the intersection. The biker must come to a complete stop. Before turning, the biker should signal (left arm bent upward in a right angle) before moving from the center to the right hand side of the road (see Image 5).

**g. Right Turn** - Biker should signal a right turn (left arm pointing upward at the elbow). Before turning, the biker should scan for traffic (see Image 2).



#### Skill Event #2

Contestants will be expected to maneuver a bicycle through several different obstacle courses. Contestants will be judged on their ability to handle a bicycle in various situations. Safety will be judged at all times.

#### Straight Line Test

**Purpose** - To determine the rider's ability to maintain control of the bicycle while riding in a straight line.

**Procedure** - From a riding start at slow average speed, the rider travels the entire length of the line with both tires touching the line at all times (see Image 6). See scorecard on page 13.

Balance Test (Straight Line) **Purpose** - To test the balance of the rider.

**Procedure** -The rider starts, from a standstill, with front wheel on the "start" line and rides very slowly through the lane in not less than 30 seconds, with neither tire touching the lines on either side (see Image 7). See scorecard on page 13.

#### Figure Eight Steering

**Purpose** - To evaluate the rider's ability in steering and balance.

**Procedure** -The rider takes a moving start with both hands on the handlebars and makes three complete figure eights (see Image 8). See scorecard on page 14.

Image 6: Course for Straight Line Test

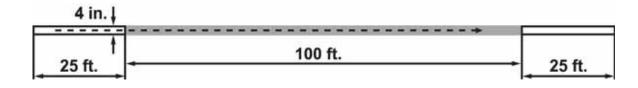
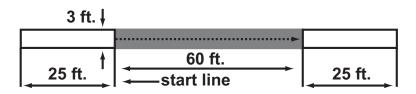
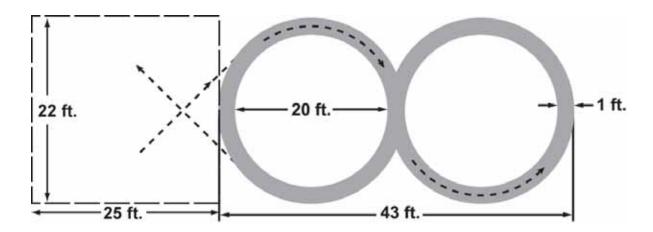


Image 7: Course for Straight Line Balance Test



#### Image 8: Figure Eight Course



#### Figure Eight Balance Test

**Purpose** - To test the delicate balance of the rider on the figure eight.

**Procedure** - The rider starts from a standstill at a designated point in the figure eight and rides very slowly in the lane through the figure eight, making one complete pattern in not less than 45 seconds, with neither wheel touching any borderline (see Image 8). See scorecard on page 14.

#### Single Obstacle Test

**Purpose** - To test the ability of the rider to maneuver in close quarters.

**Procedure** - The rider starts from a position behind the course so that balance is secured before the first obstacle is reached. The rider passes the first obstacle on the right and follows a serpentine course among the rest. When the last obstacle has been passed, the rider returns, weaving as before (see Image 9). See scorecard on page 15.

#### Double Obstacle Test

**Purpose** - Determine the rider's ability to gauge limited space on a straight line.

**Procedure** - From a riding start, the rider maneuvers slowly between the pairs of obstacles without touching any. When the rider has gone the entire distance, he/she turns and repeats the performance in the opposite direction (see Image 10). See scorecard on page 15.

#### Double Zigzag Obstacle Test

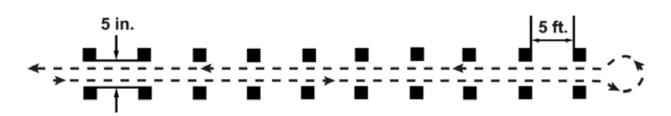
**Purpose** -Test the rider's ability to gauge limited space on a zigzag line.

**Procedure** -From a riding start, the bicyclist zigzags at a slow rate of speed between the pairs of obstacles without touching any obstacle. When the rider has traveled the entire distance, he/she turns and repeats the performance in the opposite direction (see Image 11). See scorecard on page 16.

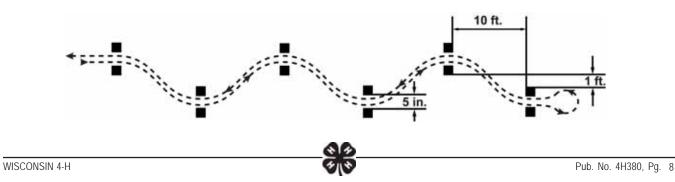


Image 10: Course for Double Obstacle Test

Image 9: Course for Single Obstacle Test



#### Image 11: Course for Double Zigzag Obstacle Test



Junior Division	
Senior Division	

Contestant Number	
County	
Score	

## **MAINTENANCE - SAFETY CHECK SCORECARD**

In the spaces below, identify the maintenance and/or safety hazards found on the bicycle. Time limit = 5 minutes. **Note:** Junior Division contestants should only use the first five blanks.

1.	
10.	

Contestant Number
County
Score

# PARTS, TOOLS AND ACCESSORIES IDENTIFICATION SCORECARD

Items to be identified have a number attached to them. Select the most correct name from the list. Time limit = 30 minutes.

Adjustable wrench	Oil
Allen wrench	Pannier
Baggage carrier rack	Pedal
Bearing	Pliers (needle nose)
Brake (front)	Pliers (regular)
Brake (rear)	Plumber's wrench
Brake shoe	Ratchet
Cable	Reflector
Cable cutter (wire cutter)	Rim
Chain	Saddle (seat)
Chain guard	Saddle pack (bag)
Chain stay	Saddle post
Chain wheel	Screwdriver (Phillips)
Cone wrench	Screwdriver (regular)
Crank	Seat stay
Crank extractor	Shift levers
Derailleur (front)	Socket
Derailleur (rear)	Spoke
Down tube	Sprocket
Feeder bottle	Stem(handlebar)
Fender (front)	T-Wrench
Fender (rear)	Thumbscrew tool (chain rivet extractor)
Fork	Tire
Freewheel	Tire gauge
Freewheel extractor keys	Tire iron
Hammer (plastic)	Tire pump
Handlebar grip	Tire valve
Head tube	Toe clip
Hub	Tool pouch
Lamp (head)	Valve cap
	Valve stem

#### JUNIOR DIVISION

Contestant Number
County
Score

# PARTS, TOOLS AND ACCESSORIES IDENTIFICATION SCORECARD

Items to be identified have a number attached to them. Write the **common name** of the part in the space beside its corresponding number. Time limit = 30 minutes.

1.	
2.	
3.	
4.	
20.	

Junior Division	
Senior Division	

Contestant Number	
County	
Score	

# SKILL EVENT #1 SCORECARD

	Number of times	Total
1. Turning		
a. Failure to give signal(s)	x 10	
b. Improper signal given	x 10	
c. Failure to check traffic	x 10	
d. Improper scanning for traffic	x 5	
e. Improper turning techniques	x 5	
(Ex: making left turn from far right side of the road, etc.)		
f. Skidding tire	x 5	
g. Losing control of bike	x 10	
2. Stopping		
a. Failure to give signal	x 10	
b. Improper signal given	x 10	
c. Skidding tire(s)	x 5	
d. Failure to stop before crosswalk	x 5	
e. Failure to check before proceeding	x 10	
f. Failure to stop	x15	
3. General		
a. Failure to ride on proper side of road	x 10	
b. Skidding tires	x 5	
c. Failure to keep appropriate distance from parked vehicle	x 5	
d. Weaving in and out of parked vehicles	x 5	
e. Hitting parked car	x 25	
4. Braking		
a. Skidding tires	x 5	
b. Swerving bicycle	x 5	
5. Scanning Exercise		
a. Looking over wrong shoulder	x 5	
b. Failure to scan	x 10	
c. Identifying object incorrectly	x 5	
d. Losing control of bicycle	x 10	
6. Other	_	
	x 5	
	x 5	
	x 5	
	Total	

Junior Division	
Senior Division	

Contestant Number	
County	

# STRAIGHT LINE TEST SCORECARD

Infraction	Number of times	Penalty points
1. Having either tire outside line	x 2	
2. Touching foot to the ground	x 5	
3. Stopping on the course	x 8	
4. Sliding wheel	x 5	
5. Safety infraction	x 10	
6. Other	x 5	
	Total	

Junior Division \_\_\_\_\_ Senior Division \_\_\_\_\_

Contestant Number	
County	

# BALANCE TEST (Straight Line) SCORECARD

In	fraction	Number of times		Penalty points
1.	Touching foot to ground		x 5	
2.	Wheels touch line on either side		x 2	
3.	Completing course in less than 30 seconds (1 point per second – maximum of 8)		x 1	
4.	Safety infraction		x 10	
5.	Other		x 5	
			Total	

Junior Division	
Senior Division	

Contestant Number	
County	

# FIGURE EIGHT STEERING SCORECARD

Infraction	Number of times	Penalty points
1. Touching foot to ground	X .	5
2. Not using both hands on handlebars	X .	5
3. Having either tire touch any borderline	x 2	2
4. Off course	X .	5
5. Safety infraction	x1	) (
6. Other	X .	5
	Tota	al

Junior Division \_\_\_\_\_ Senior Division \_\_\_\_\_

Contestant Number	
County	

## FIGURE EIGHT BALANCE TEST SCORECARD

Inf	fraction	Number of times		Penalty points
1.	Touching foot to ground		x 5	
2.	Having either tire touch any borderline		x 2	
3.	Off course		x 5	
4.	Completing course in less than 45 seconds (1 point per each second - maximum of 8)		x 1	
5.	Not using both hands on handlebars		x 5	
6.	Safety infraction		x 10	
7.	Other		x 5 Total	

Contestant Number	
County	

# SINGLE OBSTACLE TEST SCORECARD

Infraction	Number of times		Penalty points
1. Touching foot to the ground		x 5	
2. Hitting an obstacle		x 2	
3. Passing obstacle on the wrong side		x 5	
4. Not using both hands on handlebar		x 5	
5. Skidding wheel		x 10	
6. Safety infraction		x 10	
7. Other		x 5	
		Total	

Junior Division \_\_\_\_\_ Senior Division \_\_\_\_\_

Contestant Number	
County	

## DOUBLE OBSTACLE TEST SCORECARD

Infraction	Number of times		Penalty points
1. Touching foot to ground		x 5	
2. Touching an obstacle		x 2	
3. Not passing between any pair of obstacles		x 5	
4. Not using both hands on handlebar		x 5	
4. Skidding		x 10	
5. Safety infraction		x 10	
6. Other		x 5	
		Total	

Junior Division	
Senior Division	

Contestant Number —	
County —	

# DOUBLE ZIGZAG OBSTACLE TEST SCORECARD

Infraction	Number of times		Penalty points
1. Touching foot to ground		x 5	
2. Touching an obstacle		x 2	
3. Failure to pass between a pair of obstacles		x 5	
4. Not using both hands on handlebar		x 5	
4. Skidding wheel		x 10	
5. Safety infraction		x 10	
6. Other		x 5	
	Total		



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