

Bicycle Repair Guide Training Guide



Bicycle Repair Guide

Training Guide

Overview

Goal: Health surveillance assistants in Malawi will have a safe and reliable bicycle to use.

Purpose: Health surveillance assistants in Malawi will have less transport limitations due to a broken bicycle and can therefore provide access to life saving medicines to children in Malawi.

Objectives: Training will allow health surveillance assistants in Malawi to conduct preventative maintenance and basic repair on bicycles used for collection of community health products.

Training Development: This training was developed with qualified Malawian bicycle mechanics, who have years of experience working with Africycle.

Training Approach: Trainees are not just listening to the trainer, but receive visual demonstrations, high quality visuals on printed materials, and supervised hands-on experience.

Workshop Schedule

Day 1:

JSI Component

Day 2:

Time
(MIN)

Activity

Africycle Component

85	Introduction
61	Training session 1
15	Brake
60	Work Session 1
60	Lunch
95	Training Session 2
15	Brake
60	Work Session 2
65	Test and Pictures
516	Total Time (min)
8.6	Total Time (Hours)

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Introduction

Time (MIN)	Activity	Actions
5	Introduction	<ul style="list-style-type: none"> ➤ Trainer welcomes the class ➤ Trainer introduces him/her self ➤ Pass around participant info sheet
5	Objectives	<ul style="list-style-type: none"> ➤ Trainer introduces objective - To conduct bicycle maintenance and basic repair
20	Introductions of people attending class	<ul style="list-style-type: none"> ➤ Trainer asks the class to introduce themselves one by one by asking each participant to describe their favorite thing about their bicycle ➤ Trainer marks favorite items on flip chart with marker
5	Intro to the bicycle (roadster)	<ul style="list-style-type: none"> ➤ History of the bicycle (roadster)- Malawi
20	What can go wrong with the bicycle?	<ul style="list-style-type: none"> ➤ Trainees list experiences on flip chart ➤ (if not covered in the planned training, trainer will add at end of course, time permitting)
10	Intro to training	<ul style="list-style-type: none"> ➤ Overview of the entire training and reminder that there will be a test at the end of the three days. During the test participants are encouraged to use their Guide, and written notes. After the test they will have the opportunity to discuss approaches with each other and the trainer. ➤ Information about how each day will be broken up and formatted
10	Intro to training materials (cards/poster)	<ul style="list-style-type: none"> ➤ Explain the purpose of the cards and how they are organized, suits and groups ➤ Explain how to use as manuals outside of training
10	Distribute repair kits and manuals/posters	<ul style="list-style-type: none"> ➤ Trainers distribute materials, list the tools and how they are used ➤ Set up for next component

Session Objectives:

- Introduce other participants
- Understand the format of the training
- Create mutual respect for the bicycle, and its follies

Time: 85 minutes

Trainer Preparation:

Have flip charts & markers set up and easy to reach, printed participant sheets. Have tool kits, guides and posters ready for distribution, and checked out of inventory

Materials:

Flip chart, marker(s)
Notebooks and pens

Handouts:

1. Participant attendance sheet
2. Tool Kits
3. Bicycle Maintenance Guide
4. Posters

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Practical Training 1 (Morning)

Time (MIN)	Activity	Actions (Performed by Trainer)
10	• Tire	<ul style="list-style-type: none"> ➤ Turn to Group 1 in Guide and have one of the trainees try to explain graphic ➤ Facilitator demonstrates how to check the tire pressure ➤ Facilitator demonstrates how to remove a wheel ➤ Facilitator demonstrates how to remove the tire from rim, tire types ➤ Facilitator checks if there are any questions.
7	• Tube	<ul style="list-style-type: none"> ➤ Turn to Group 2 in Guide and have one of the trainees try to explain graphic ➤ Facilitator demonstrates how to check for a hole ➤ Facilitator demonstrates how to check what caused the puncture ➤ Facilitator demonstrates how to install a patch ➤ Facilitator checks if there are any questions.
10	• Spoke and Wheel	<ul style="list-style-type: none"> ➤ Turn to Group 3 & 4 in Guide and have one of the trainees try to explain graphic ➤ Demonstrate how to re and re 'broken' spoke ➤ Demonstrate how to tighten the spoke, how to match the tightness of spokes, how to feel the tightness of spokes with hands, check rim straightness ➤ Brief of how to lace a wheel/replace a hub/rim. ➤ Facilitator checks if there are any questions.
20	• Hub	<ul style="list-style-type: none"> ➤ Turn to Group 5 & 6 in Guide and have one of the trainees try to explain graphic ➤ Demonstrate how to remove free wheel ➤ Demonstrate how to re move the axle, clean and grease bearings/replace ➤ Demonstrate how to tighten & adjust cone nuts, how to reinstall the free wheel
15	• Chain	<ul style="list-style-type: none"> ➤ Turn to group 7 in Guide and have one of the trainees try to explain graphic ➤ Demonstrate how to check chain tension, how to adjust chain tension ➤ Demonstrate how to check wear on chain, crank (sprocket) and free wheel ➤ Demonstrate how to clean and lube ➤ Demonstrate how repair a broken chain, demo how to move chain through chain stay to avoid having to disconnect ➤ Demonstrate by hammering chain pins how to repair a broken chain
15	Break	<ul style="list-style-type: none"> ➤ Before break explain to the class how the practical work session will be structured and what to expect when they return to the class ➤ Trainers set up work session 1

Session Objectives:

- Demonstrate maintenance and repair of above topics, using the guide
- Demonstrate disassembly and assemble procedures of above topics using the guide

Time: 60 minutes

Materials:

Demo Bike, Bike stand, trainer tool kit, flip chart & markers

Trainer Preparation:

Have Demonstration bicycle and bicycle stand ready for action

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Class Practical Work 1

Time (MIN)	Activity	Actions
30	• Hub	<ul style="list-style-type: none"> ➤ Handout ~10 participants (or half) 1 hub each ask them to fully disassemble, and fully reassemble, trainer will check their work, and instruct them if there was any mistakes made ➤ When person is done they will trade with a chain. (see below) ➤ Participants who have succeeded will be asked to assist others if necessary
30	• Chain	<ul style="list-style-type: none"> ➤ Handout ~10 people a piece of chain, ask them to separate links, and rejoin ➤ When person is done they will trade with a hub. (see above) ➤ Participants who have succeeded will be asked to assist others if necessary

Lunch

Time (MIN)	Activity	Actions
60	• Lunch	JSI organizes lunch for participants and staff

Session Objectives:

- To give participants supervised experience overhauling components common to maintenance and repair

Time:

Practical work 1: 60 minutes
Lunch: 60 minutes

Trainer Preparation:

Have all hubs and chains plus extra ready for distribution, have spare ball bearings in case some get lost.

Materials:

-Grease
-Rags

Handouts:

~ 10 hubs (will be returned at session end)
~ 10 Chain Segments (will be returned at session end)

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Training 2 (Afternoon)

Time (MIN)	Activity	Actions (Performed by Trainer)
30	• Safety, bicycle checks and set up	<ul style="list-style-type: none"> ➤ Turn to Group 12 in Guide and have one of the trainees try to explain graphic ➤ Demonstrate how to conduct ride pre checks, check tire pressure, check brakes, wiggle front and rear wheels. wiggle cranks, check head set ➤ Demonstrate how daily checks are important to extend the life of the bicycle. ➤ Inform about road rules, methods to ride with traffic, ride predictably on the side of the road, use hand signals when near traffic (bikes or motor vehicles) ➤ Inform about the importance of visibility reflectors and bright color clothing for visibility especially in low light riding hours, drink water to avoid dehydration
15	• Bottom bracket	<ul style="list-style-type: none"> ➤ Turn to Group 8 and have one of the trainees try to explain graphic ➤ Demonstrate how to check bottom bracket ➤ Demonstrate how to remove cranks, how to remove ball bearings and axle, how to clean bearings, how to check if bearings need to be replaced, demo install bearings, demo how to adjust tightness of cups and how to install lock ring ➤ Demonstrate how to clean the whole bottom bracket area, explain that bottom bracket frequently fail because of water in the frame
15	• Pedals	<ul style="list-style-type: none"> ➤ Turn to Group 9 and have one of the trainees try to explain graphic ➤ Demonstrate how to check pedals for play/lash ➤ Demonstrate how to remove pedal *comment on reverse thread, how to remove pedal axle, how to clean ball bearings, how to install ball bearings, how to adjust cone tightness, how to tighten lock nut
20	• Rod brakes (front & rear)	<ul style="list-style-type: none"> ➤ Turn to Group 10 and have one of the trainees try to explain graphic ➤ Demonstrate how to check the tightness/preload and gap/lash of the brakes ➤ Demonstrate how to adjust the tightness/lash of the brakes ➤ Demonstrate how to check the pad alignment with the rim ➤ Demonstrate how to adjust the pad alignment with the rim
15	• Headset	<ul style="list-style-type: none"> ➤ Turn to page 11 and have one of the trainees try to explain graphic ➤ Demonstrate how to check the head set tightness ➤ Demonstrate removal of handle bars, remove fork, demo cleaning and lube of bearings ➤ Show how to check if parts need to be replaced ➤ Demonstrate greasing and reinstallation, demo how to tighten and not over tighten
~	• If items on flip chart were not covered	<ul style="list-style-type: none"> ➤ Time permitting, address items on flip chart that have not been covered by planned training, use demo bicycle and explain the situation and repair/maintenance procedures
15	Break	<ul style="list-style-type: none"> ➤ Trainers set up work session 2

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Training 2 (Afternoon)

Session Objectives:

- Demonstrate maintenance and repair of above topics, using the guide
- Demonstrate disassembly and assemble procedures of above topics using the guide

Time: 95 minutes + flip chart materials

Trainer Preparation:

Look over flip chart that was made at beginning of class and decided if and how they will cover the issues

Materials:

Flip chart, markers

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Class Practical Work 2

Time (MIN)	Activity	Actions
30	• Bottom bracket	<ul style="list-style-type: none"> ➤ Give ~10 participants (or half) 1 bottom bracket each, ask them to fully disassemble, and fully reassemble, trainer will check their work, and instruct them if there was any mistakes made ➤ When person is done they will trade with a tube to install a patch (see below) ➤ Participants who have succeeded will be asked to assist others if necessary
30	• Tire patch	<ul style="list-style-type: none"> ➤ Give ~10 participants a piece of broken tube, participants will install a patch, trainer will check and comment on their work, ask them to redo if their work is not satisfactory ➤ When person is done they will trade with a bottom bracket (see above) ➤ Participants who have succeeded will be asked to assist others if necessary

Test

Time (MIN)	Activity	Actions (Performed by Trainer)
60+	• Test and certificates	<ul style="list-style-type: none"> ➤ Hand out test, allow for 10–15 mins for participants to complete test ➤ Trainer will discuss test with the class ➤ Questions will be encouraged during this time ➤ Trainer will pass out certificate with name date and trainers signature ➤ Test will be 10 questions multiple choice based on the content of the day ➤ Discussion (30+mins)
5	• Group Picture	Trainer will take photograph of smiling faces

Session Objectives:

By the end of the session participants will be able to:

1. Form an effective workshop group
2. Describe the goal, objectives and schedule for the workshop
3. Identify other participants in the workshop

Time: 125 minutes

Trainer Preparation:

Have Bottom brackets and inner tube segment ready for distribution, have spare ball bearings ready. Have Test Printed and Ready. Have Certificates Dated and signed by the trainer

Materials:

Grease
Rags
Class Set of Pens (to return after test have been written)

Handouts:

~ 10 Bottom Brackets (will be returned at session end)
~ 10 Inner tube Segments (will be returned at session end)
-Test
-Certificates

Items to bring

Materials:

1. Grease
2. Rags
3. Notebooks
4. Class set of pens
5. Flip chart
6. Marker(s)
7. Demo bike
8. Bike stand
9. Trainer tool kit

Handouts:

- 10.~ 10 Bottom brackets (will be returned at session end)
- 11.~ 10 Inner tube segments (will be returned at session end)
- 12.~ 10 hubs (will be returned at session end)
- 13.~ 10 Chain segments (will be returned at session end)
14. Test
15. Certificates
16. Participant attendance sheet
17. Tool Kits
18. Bicycle Maintenance Guide
19. Posters