



Technical, Entrepreneurship and Vocational Education and Training Authority (TEVETA)

MECHANICAL FITTING

TRADE TEST LEVEL 2

Record of Practical Assessment

Learner`s name:_____

Learner`s NRC No.:_____

Learner`s TEVETA No.:_____

Institution Name:_____

Institution TVA No.:_____

Assessment Period:_____

PREFACE

The Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) is an institution created under the Technical Education, Vocational and Entrepreneurship Training Act Number 13 of 1998, as amended by the Technical Education, Vocational and Entrepreneurship Training (Amendment) Act Number 11 of 2005.

The Act among other things provides that TEVETA shall:

- (a) regulate and conduct national examinations and assessments relating to technical education, vocational and entrepreneurship training;
- (b) charge and collect fees in respect of examinations, assessments and other services provided by the Authority;
- (c) award certificates to persons who succeed in examinations and assessments undertaken under this Act
- (d) do all such things connected with or incidental to the functions of the Authority under this Act.

Through this mandate, the Assessment and Qualifications Division of TEVETA has developed Practical Assessment Tool Kits to enable learners achieve the competences that are congruent with the demand of the workplace tasks. These tool kits in part are also intended to ensure that similar conditions under which all students in TEVET are assessed and examined apply wherever the course is undertaken in Zambia.

The Trainers shall work with the Learners to collect evidence of competence, using the benchmarks provided by the unit standards. During the year, the Learners shall be required to undertake a series of practical assessment tasks. It is the sum of all these assessments tasks that deems a Learner to be competent (or not).

This approach to assessment is not a one-off event but one that gives learners many opportunities to demonstrate skill and allow for the capturing and recording of these demonstrations.

For the Learner to be deemed competent, they must demonstrate competency in every aspect of the practical tasks being undertaken. It must however be understood by the Trainer that Competency does not mean expert. It means that the candidate has attained sufficient skill and knowledge to perform the activity or service to a degree and quality that is acceptable to the industry and the customer in a time within which a competent person at the level could reasonably be expected to perform the task.

While this will be undertaken at institutional level, it is therefore envisaged that the Assessment principles of VALIDITY, RELIABILITY, FAIRENESS and FLEXIBILITY shall at all times be adhered to.

Pre-Assessment

Assessment process explained to the Trainee (✓ if Yes).	<input type="checkbox"/>
Any appeal relating to the outcome of the assessment or the way in which the assessment was conducted shall be made through the TEVETA <u>fair treatment policy</u> as explained to the Trainee (✓ if Yes).	<input type="checkbox"/>

Learner/Trainee Learner/Trainee name: (Print) Learner/Trainee comments:	Assessor/Examiner Assessor/Examiner name: (Print) Assessor/Examiner comments:
I fully understand the assessment and appeals process.	Theory assessment sighted and checked as satisfactory. <input type="checkbox"/>
Signature: Date:	Signature: Date:

Contents

TASK 1: MEASUREMENTS, MARKING OUT AND CUTTING	5
TASK 2: METAL CUTTING USING A CHISEL	7
TASK 3: FILING	9
TASK 4: DISASSEMBLE AND ASSEMBLE A BEARING RIG USING HAND TOOLS	11
TASK 5: LUBRICATION	12
TASK 6: BENCH VICE MAINTENANCE	13
TASK 7: TAKING MEASUREMENTS USING A VERNIER CALIPER.....	14
TASK 8: DRILLING, COUNTERSINKING AND REAMING	16
TASK 9: PARALLEL TURNING AND FACING USING A LATHE	17
TASK 10: DRILLING USING A LATHE	19
TASK 11: CUTTING INTERNAL THREADS USING TAPS.....	21
TASK 12: MOUNTING AND DISMOUNTING OF A BEARING	23
TASK 13: REMOVAL AND INSTALLATION OF BELT DRIVES	24
TASK 14: COUPLING ALIGNMENT	25
FINAL PRACTICAL ASSESSMENT SUMMARY	26
ASSESSMENT OUTCOME	28
VALIDATION OF THE ASSESSMENT	29

TASK 1: MEASUREMENTS, MARKING OUT AND CUTTING

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Carry out measurements using a steel rule and measuring tape. This should include: <ul style="list-style-type: none"> Measuring 20 X 150mm round bar Measuring 50 X 12 X 200mm flat bar Measuring a 30 X 30 X 150mm square bar 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)	Mark out the work piece shown in the figure below. This should include: <ul style="list-style-type: none"> Applying a layout / Marking out substance Marking out straight lines using a Scriber and steel rule 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d)	Cut the marked out work piece using a hacksaw. This should include; <ul style="list-style-type: none"> Selecting the correct blade Cutting a 100mm X 80mm X 3mm thick piece using a hacksaw. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

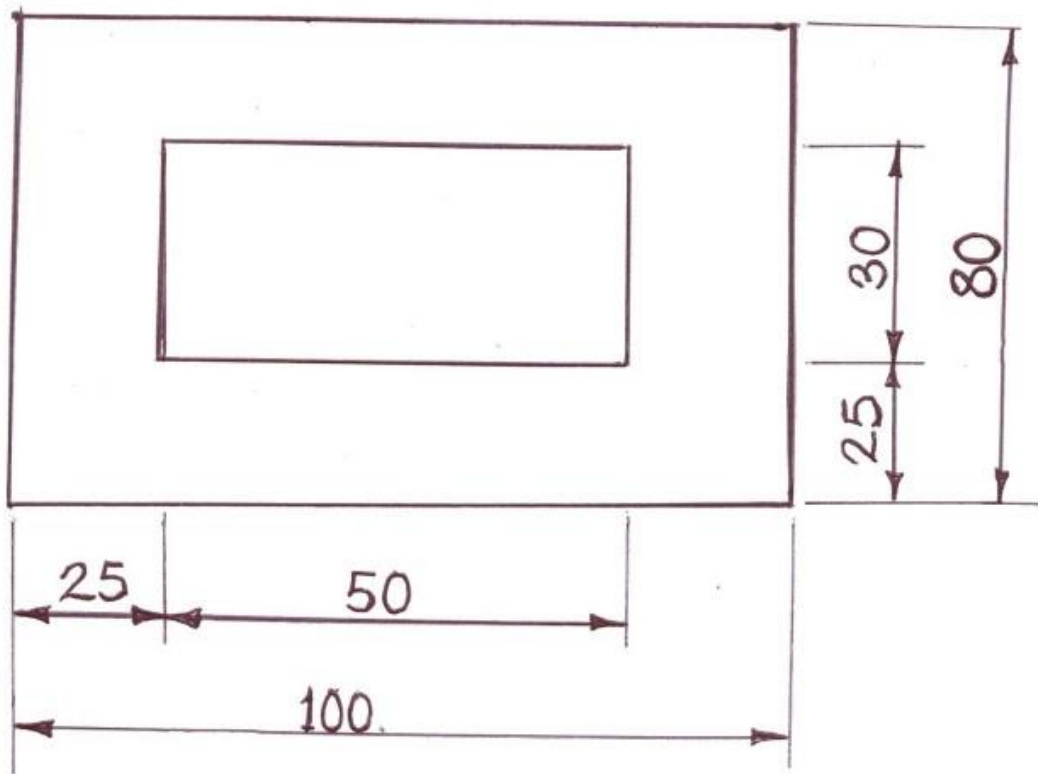


Fig.1: Measuring, Marking Out and Cutting

TASK 2: METAL CUTTING USING A CHISEL

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Cut a metal using a chisel . This should include: <ul style="list-style-type: none"> Measuring as per specification on the drawing below Marking out the part to be chiselled Securing the work and chiselling out the shaded portion 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

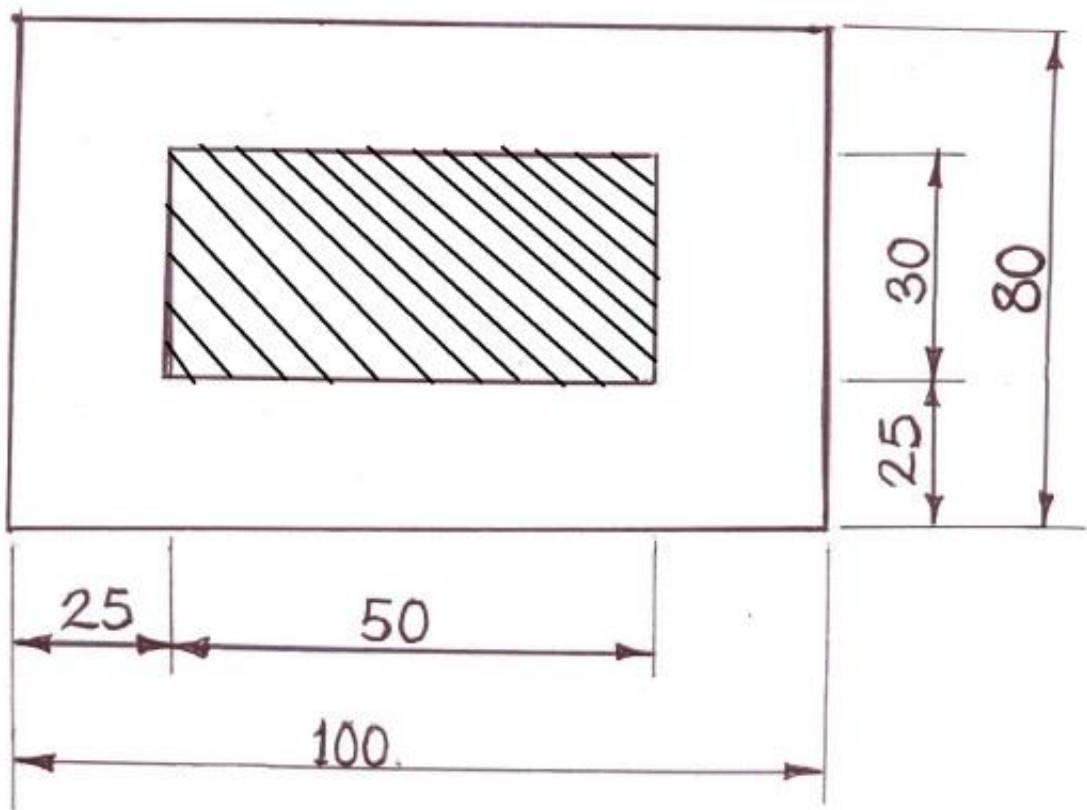


Fig.2: Chiseling

TASK 3: FILING

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Cross file the work. This should include: <ul style="list-style-type: none"> • Selecting the correct file (coarse file) • Using the correct filing techniques to file the metal to shape 						
(c)	Draw file the work. This should include: <ul style="list-style-type: none"> • Selecting the correct file (smooth file) • Using the correct filing techniques to finish the flat surfaces 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

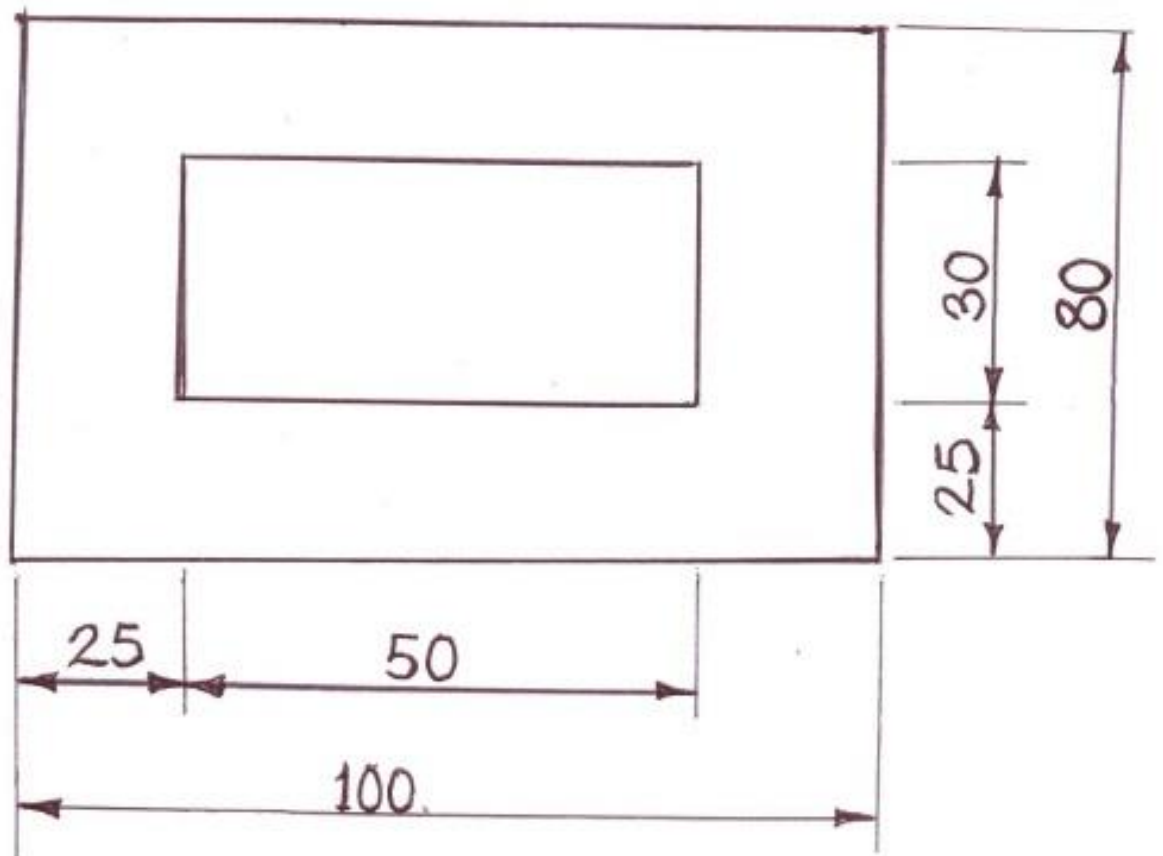


Fig.3: Filing

TASK 4: DISASSEMBLE AND ASSEMBLE A BEARING RIG USING HAND TOOLS

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Identify tools. This should include: <ul style="list-style-type: none"> • Spanners • Wrenches • Hammers • Chisels 						
(c)	Disassemble the rig. This should include: <ul style="list-style-type: none"> • Mate marking • Sequential stripping 						
(d)	Assemble the rig. This should include: <ul style="list-style-type: none"> • Fitting the parts/components back in sequence. • Firmly tightening the bolts and screws 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 5: LUBRICATION

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Lubricate bearings with grease. This should include: <ul style="list-style-type: none"> • Selecting right type of grease • Using the correct technique • Applying the right amount of grease 						
(c)	Lubricate gears with oil. This should include: <ul style="list-style-type: none"> • Selecting the right type of oil • Draining the used oil • Applying the right amount of oil 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 6: BENCH VICE MAINTENANCE

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Carry out maintenance on the vice. This should include: <ul style="list-style-type: none"> • Inspecting the screw and the nut • Lubricating the screw and nut • Tightening the jaws and holding down bolts 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 7: TAKING MEASUREMENTS USING A VERNIER CALIPER

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Carry out measurements on a flange coupling using a vernier calipers. These measurements include: <ul style="list-style-type: none"> • Flange Diameter = 70mm • Bore Diameter = 16mm • Hub diameter = 28mm • Hub length = 25mm • Flange thickness = 15mm <p>As shown in the diagram below</p>						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 8: DRILLING, COUNTERSINKING AND REAMING

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 						
(b)	Drill a 16mm diameter through hole in a 20mm mild steel plate. This should include: <ul style="list-style-type: none"> Marking out and centre punching the position to be drilled Pilot drill the hole to 5mm diameter Drill the required the hole to 16mm diameter 						
(C)	Countersink one end of a 10mm diameter through hole in a mild steel plate. This should include: <ul style="list-style-type: none"> Drilling a hole 10mm hole using a drilling machine Countersinking the hole using a 60° countersink to a depth of 5mm using a drilling machine 						
(d)	Ream a hole to 12mm diameter in a 20mm mild steel plate. This should include: <ul style="list-style-type: none"> Drilling a hole to a diameter of 11.75mm using a drilling machine Ream the hole to 12mm using a drilling machine 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 9: PARALLEL TURNING AND FACING USING A LATHE

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 						
(b)	Make the male part of a hinge. This should include: <ul style="list-style-type: none"> Facing to the work piece using a lathe machine Parallel turning to the required diameter using a lathe machine 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

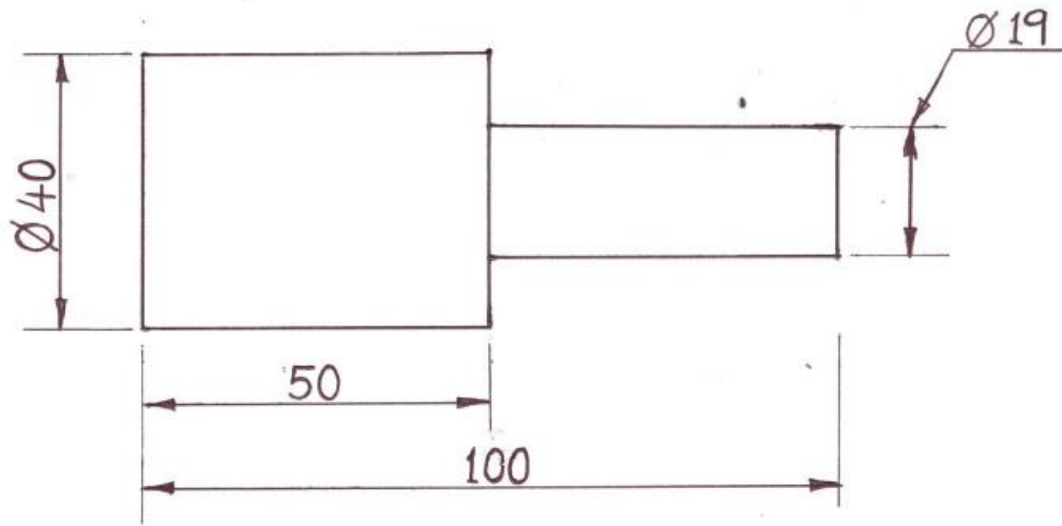


Fig.4: Hinge - Male

TASK 10: DRILLING USING A LATHE

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 						
(b)	Make the female part of a hinge. This should include: <ul style="list-style-type: none"> Facing off the material to the length of 50mm using a lathe machine Turning to a diameter of 40mm using a lathe machine Drilling a 20mm diameter hole using a lathe machine 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

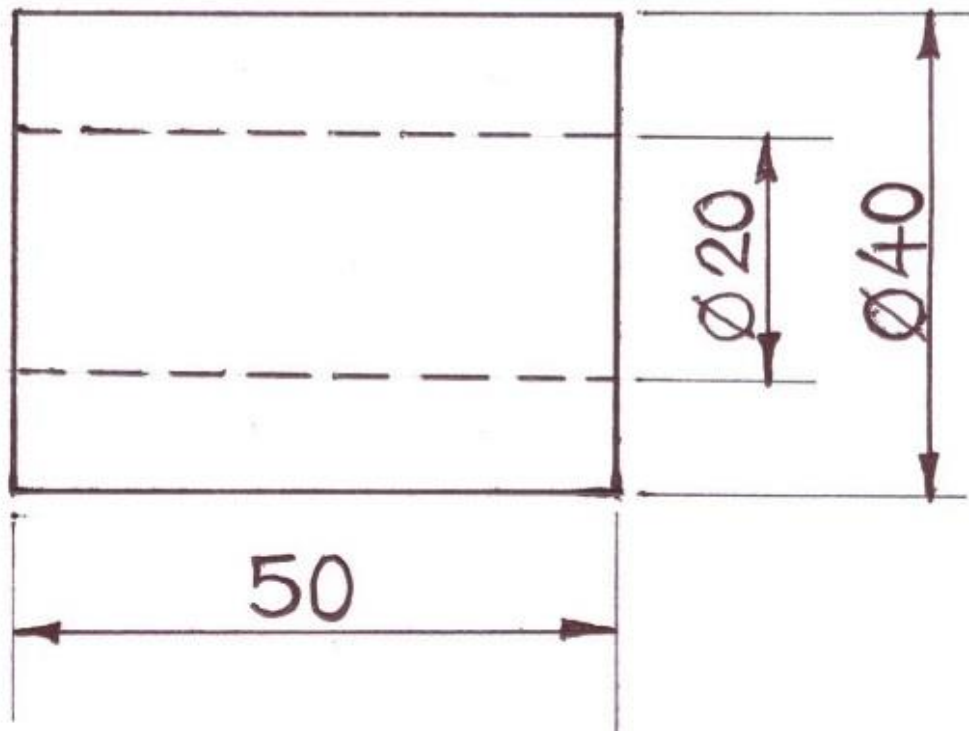


Fig.5: Parallel Turning And Drilling

TASK 11: CUTTING INTERNAL THREADS USING TAPS

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> • Putting on the correct PPE • Observing good house keeping • Arranging the tools in order 						
(b)	Cut internal threads(M16X2) on a T - Nut using Taps. This should include: <ul style="list-style-type: none"> (i) Drilling the hole to the correct tap drill size (14 mm) (ii) Tapping the thread using the correct tapping sequence 						

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

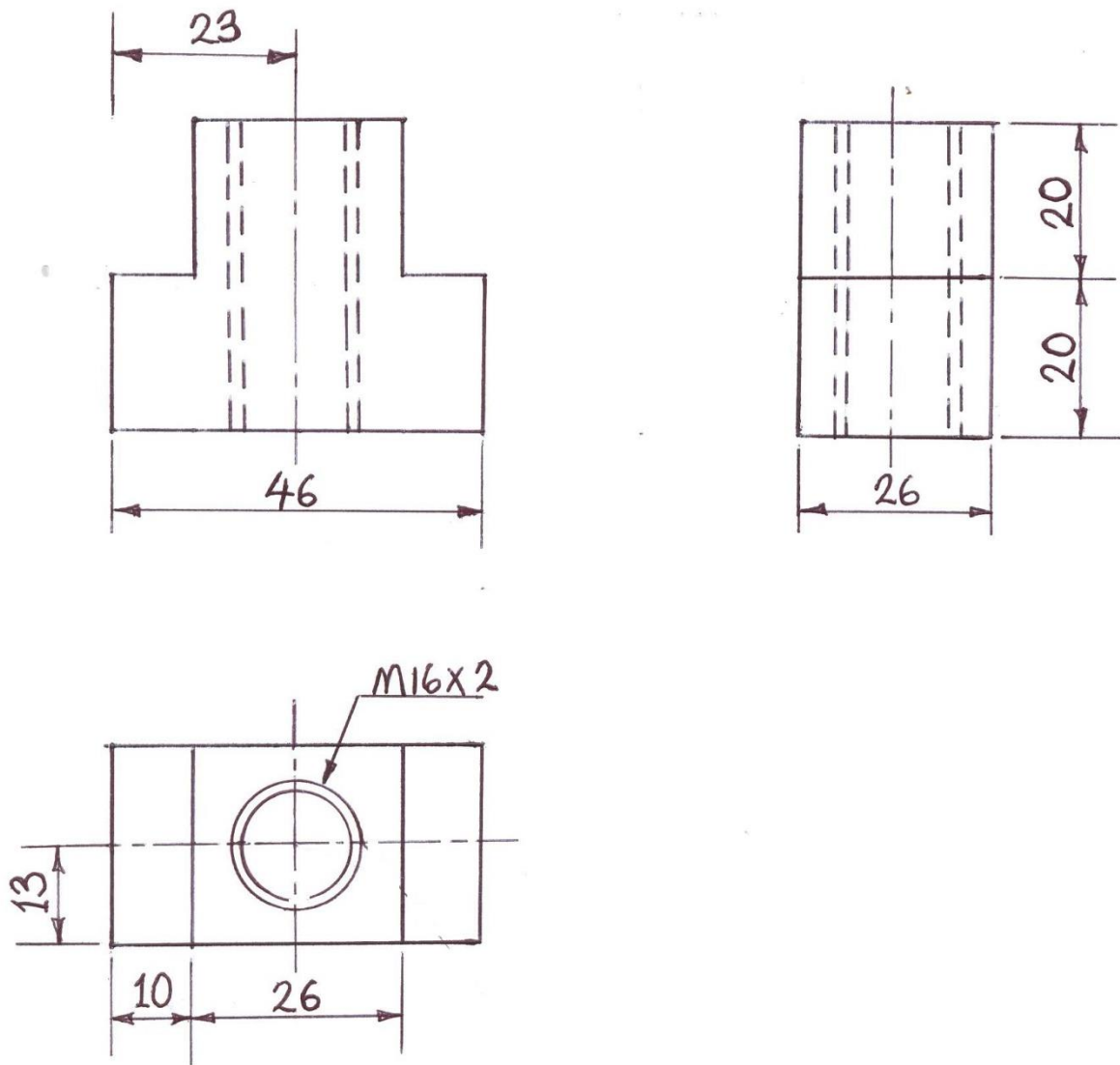


Fig.6 T - Nut

TASK 12: MOUNTING AND DISMOUNTING OF A BEARING

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Dismount the bearing on the coupling rigs. This should include: <ul style="list-style-type: none"> Removing the bearing from the shaft Inspecting the bearing and shaft 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)	Mount the bearing on the coupling rig. This should include: <ul style="list-style-type: none"> Cleaning the bearing seat using an emery cloth Applying a thin layer of lubricant on the shaft and bearing seat Mounting the bearing and lubricating it 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 13: REMOVAL AND INSTALLATION OF BELT DRIVES

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order Ensuring that the Guard is in place 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Remove Vee – Belts from the pulleys. This should include: <ul style="list-style-type: none"> Reducing the span Removing the belts and pulleys Inspecting the belts and pulleys 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)	Install the belts. This should include: <ul style="list-style-type: none"> Fitting back the pulleys and the belts Aligning and tensioning the belts 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

TASK 14: COUPLING ALIGNMENT

Activity/operation		Attempts					
		Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:		1	2	3	1	2	3
(a)	Adhere to safety regulations. This should include: <ul style="list-style-type: none"> Putting on the correct PPE Observing good house keeping Arranging the tools in order Ensuring that the guard is in place 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Align the couplings on the supplied Coupling Rig. This should include: <ul style="list-style-type: none"> Checking the initial alignment and gap between the coupling flanges Dismantling the coupling rig Inspecting the coupling condition and recording the findings Assembling the coupling rig, aligning the couplings and setting the gap between the coupling flanges 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examiner's comments:

Signed:

Examiner Name/Sign:

Learner's Name/sign:

Date:

Date:

FINAL PRACTICAL ASSESSMENT SUMMARY

Practical Assessment Summary	Satisfactory	Not Satisfactory
TASK 1: Measurements, Marking Out And Cutting	<input type="checkbox"/>	<input type="checkbox"/>
TASK 2: Cutting Using A Chisel	<input type="checkbox"/>	<input type="checkbox"/>
TASK 3: Filing	<input type="checkbox"/>	<input type="checkbox"/>
TASK 4: Disassemble And Assemble A Bearing Rig Using Hand Tools	<input type="checkbox"/>	<input type="checkbox"/>
TASK 5: Lubrication	<input type="checkbox"/>	<input type="checkbox"/>
TASK 6: Bench Vice Maintenance	<input type="checkbox"/>	<input type="checkbox"/>
TASK 7: Measuring Using A Vernier Calipers	<input type="checkbox"/>	<input type="checkbox"/>
TASK 8: Drilling, Countersinking And Reaming	<input type="checkbox"/>	<input type="checkbox"/>
TASK 9: Parallel Turning And Facing Using A Lathe	<input type="checkbox"/>	<input type="checkbox"/>
TASK 10: Drilling Using A Lathe	<input type="checkbox"/>	<input type="checkbox"/>
TASK 11: Cutting Internal Threads Using Taps	<input type="checkbox"/>	<input type="checkbox"/>
TASK 12: Dismounting And Mounting A Bearing	<input type="checkbox"/>	<input type="checkbox"/>
TASK 13: Removal And Installation Of Belt Drives	<input type="checkbox"/>	<input type="checkbox"/>

ASSESSMENT OUTCOME

Competent



Not Competent



Learner/Trainee	Assessor/Examiner
Learner/Trainee name:	Assessor/Examiner name:
(Print)	(Print)
Learner/Trainee comments:	Assessor/Examiner comments:
Signature:	Signature:
Date:	Date:

VALIDATION OF THE ASSESSMENT

NAME:.....

DATE:.....

POSITION: **PRINCIPAL/HEAD OF INSTITUTION**

SIGNATURE:.....

NAME INSTITUTION:.....

STAMP:

