

***Mention in beginning that OTIDS stand for Operation, Transportation, Inspection, Delay, Storage**

STAGE 1

PROCESS 1

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Walk 16 steps with the beam and set it on the jig by using finger to spin the locator pin approximately 8 turning [OB side]

Frequency (*If user leave it blank means that doesn't have value)

Rf =

Cf =

Activity Sequence = A32 B0 G6 - A1 B0 P3 - U10 - A1 B0 P1 - A0

= (32*10) + (0*10) + (6*10) + (1*10) + (0*10) + (3*10) + (10*10) + (1*10) + (0*10) + (1*10) + (0*10)

= 320+60+10+30+100+10+10 = 540

Classification Time (TMU) (*If user leave it blank means = 0)

O = 220

T = 320

I =

D =

S =

Total TMU = 540

Time (Hour)

= Total TMU * 0.00001

= 540 * 0.00001

= 0.0054

Standard Time

= Time (Hour) * (1+0.15)

= 0.0054 * (1+0.15)

= 0.00621 Hour

STAGE 1

PROCESS 2

Type of move = General Move (ABG ABP A)

Detail or name of sequence = Secure beam with Qty 3 clamps provided on assembly jig

Frequency (*If user leave it blank means it does not have value)

Rf =

Cf =

Activity Sequence = A3 B0 G6 - A1 B0 P6 - A0

= $(3*10) + (0*10) + (6*10) + (1*10) + (0*10) + (6*10) + (0*10)$

= $30+60+10+60 = 160$

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 130

Transportation = 30

Inspection =

Delay =

Storage =

Total TMU = 160

Time (Hour)

= Total TMU * 0.00001

= $160 * 0.00001$

= 0.0016

Standard Time

= Time (Hour) * (1+0.15)

= $0.0016 * (1+0.15)$

= 0.00184 Hour

STAGE 1

Sum of standard time

$$= 0.00621 + 0.00184$$

$$= 0.00805$$

$$= 0.01 \text{ *hour decimal places are 2}$$

Sum of OTIDS for stage 1

$$\text{Operation} = 220 + 130 = 350$$

$$\text{Transportation} = 320 + 30 = 350$$

$$\text{Inspection} = 0$$

$$\text{Delay} = 0$$

$$\text{Storage} = 0$$

STAGE 2

PROCESS 1

Type of move = General Move (ABG ABP A)

Detail or name of sequence = Walk 3 steps to get Sellotape and return

Frequency (*If user leave it blank means that doesn't have value)

Rf =

Cf =

Activity Sequence = A6 B0 G1 - A6 B0 P0 - A0

= $(6 \times 10) + (0 \times 10) + (1 \times 10) + (6 \times 10) + (0 \times 10) + (0 \times 10) + (0 \times 10)$

= $60 + 10 + 60 = 130$

Classification Time (TMU) (*If user leave it blank means = 0)

O = 10

T = 120

I =

D =

S =

Total TMU = 130

Time (Hour)

= Total TMU * 0.00001

= 130×0.00001

= 0.0013

Standard Time

= Time (Hour) * (1+0.15)

= $0.0013 \times (1+0.15)$

= 0.0015 Hour

STAGE 2

PROCESS 2

Type of move = Controlled Move (ABG MXI A)

Detail or name of sequence = Do masking on clipping plates with care and precision

Frequency (*If user leave it blank means it does not have value)

Rf =

Cf =

Activity Sequence = A1 B0 G1 - M3 X196 I3 - A0

$$= (1*10) + (0*10) + (1*10) + (3*10) + (196*10) + (3*10) + (0*10)$$

$$= 10 + 10 + 30 + 1960 + 30 = 2040$$

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 2040

Transportation =

Inspection =

Delay =

Storage =

Total TMU = 2040

Time (Hour)

$$= \text{Total TMU} * 0.00001$$

$$= 2040 * 0.00001$$

$$= 0.0204$$

Standard Time

$$= \text{Time (Hour)} * (1+0.15)$$

$$= 0.0204 * (1+0.15)$$

$$= 0.0235 \text{ Hour}$$

STAGE 2

PROCESS 3

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Reach the promoter and apply it on the rivetted area with care and precisely [30 rivets]

Frequency (*If user leave it blank means it does not have value)

Rf = 39

Cf =

Activity Sequence = A1 B0 G1 - A1 B0 P6 - 39U6 - A1 B0 P1 - A0

= (1*10) + (0*10) + (1*10) + (1*10) + (0*10) + (6*10) + (39*6*10) + (1*10) + (0*10) + (1*10) + (0*10)

= 10 + 10 + 10 + 60 + 2340 + 10 + 10 = 2450

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 2450

Transportation =

Inspection =

Delay =

Storage =

Total TMU = 2450

Time (Hour)

= Total TMU * 0.00001

= 2450 * 0.00001

= 0.0245

Standard Time

= Time (Hour) * (1+0.15)

= 0.0245 * (1+0.15)

= 0.0282 Hour

STAGE 2

Sum of standard time

$$= 0.0015 + 0.0235 + 0.0282$$

$$= 0.0532$$

$$= 0.05 \text{ *hour decimal places are 2}$$

Sum of OTIDS for stage 1

$$\text{Operation} = 10 + 2040 + 2450 = 4500$$

$$\text{Transportation} = 120$$

$$\text{Inspection} = 0$$

$$\text{Delay} = 0$$

$$\text{Storage} = 0$$

STAGE 3

PROCESS 1

Type of move = General Move (ABG ABP A)

Detail or name of sequence = Walk 4 steps to collect 4 hinge brackets and 2 cleats and return to place it on the rack

Frequency (*If user leave it blank means that doesn't have value)

Rf =

Cf =

Activity Sequence = A6 B0 G6 - A6 B0 P1 - A0

= $(6*10) + (0*10) + (6*10) + (6*10) + (0*10) + (1*10) + (0*10)$

= $60 + 60 + 60 + 10 = 190$

Classification Time (TMU) (*If user leave it blank means = 0)

O = 190

T =

I =

D =

S =

Total TMU = 190

Time (Hour)

= Total TMU * 0.00001

= $190 * 0.00001$

= 0.0019

Standard Time

= Time (Hour) * (1+0.15)

= $0.0019 * (1+0.15)$

= 0.002185 Hour

STAGE 3

PROCESS 2

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Reach driller and drill cleats (4.83mm)

Frequency (*If user leave it blank means it does not have value)

Rf = 4

Cf =

Activity Sequence = A1 B0 G3 - A1 B3 P6 - 4U6 - A1 B0 P1 - A0

= (1*10) + (0*10) + (3*10) + (1*10) + (3*10) + (6*10) + (4*6*10) + (1*10) + (0*10) + (1*10) + (0*10)

= 10 + 30 + 10 + 30 + 60 + 240 + 10 + 10 = 400

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 400

Transportation =

Inspection =

Delay =

Storage =

Total TMU = 400

Time (Hour)

= Total TMU * 0.00001

= 400 * 0.00001

= 0.004

Standard Time

= Time (Hour) * (1+0.15)

= 0.004 * (1+0.15)

= 0.0046 Hour

STAGE 3

PROCESS 3

Type of move = General Move (ABG ABP A)

Detail or name of sequence = Reach F clasper and walk 1 step to OB side and adjust it with hinge bracket and dowel on the beam

Frequency (*If user leave it blank means it does not have value)

Rf =

Cf =

Activity Sequence = A1 B0 G3 - A3 B0 P10 - A0

= $(1 \times 10) + (0 \times 10) + (3 \times 10) + (3 \times 10) + (0 \times 10) + (10 \times 10) + (0 \times 10)$

= $10 + 30 + 30 + 100 = 170$

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 140

Transportation = 30

Inspection =

Delay =

Storage =

Total TMU = 170

Time (Hour)

= Total TMU * 0.00001

= 170×0.00001

= 0.0017

Standard Time

= Time (Hour) * (1+0.15)

= $0.0017 \times (1+0.15)$

= 0.001955 Hour

STAGE 3

PROCESS 4

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Drill 4 holes while sitting (4.1mm - 4.7mm - 4.83mm)

Frequency (*If user leave it blank means it does not have value)

Rf = 4

Cf = 3

Activity Sequence = 3[A1 B10 G3 - A1 B10 P6 - 4U3 - A1 B10 P0 - A0]

= 3 [(1*10) + (10*10) + (3*10) + (1*10) + (10*10) + (6*10) + (4*3*10) + (1*10) + (10*10) + (0*10) + (0*10)]

= 3[10 + 100 + 30 + 10 + 100 + 60 + 120 + 10 + 100 = 1620

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 1620

Transportation =

Inspection =

Delay =

Storage =

Total TMU = 1620

Time (Hour)

= Total TMU * 0.00001

= 1620 * 0.00001

= 0.0162

Standard Time

= Time (Hour) * (1+0.15)

= 0.0162 * (1+0.15)

= 0.01863 Hour

STAGE 3

Sum of standard time

$$= 0.002185 + 0.0046 + 0.001955 + 0.01863$$

$$= 0.02737$$

$$= 0.03 \text{ *hour decimal places are 2}$$

Sum of OTIDS for stage 1

$$\text{Operation} = 190 + 400 + 140 + 1620 = 2350$$

$$\text{Transportation} = 30$$

$$\text{Inspection} = 0$$

$$\text{Delay} = 0$$

$$\text{Storage} = 0$$

STAGE 4

PROCESS 1

Type of move = General Move (ABG ABP A)

Detail or name of sequence = Walk 30 steps to overcoat room to do a fillet and adjust the beam in its position on the table

Frequency (*If user leave it blank means that doesn't have value)

Rf =

Cf =

Activity Sequence = A54 B0 G3 - A1 B0 P3 - A0

= $(54 \times 10) + (0 \times 10) + (3 \times 10) + (1 \times 10) + (0 \times 10) + (3 \times 10) + (0 \times 10)$

= $540 + 30 + 10 + 30 = 610$

Classification Time (TMU) (*If user leave it blank means = 0)

O = 610

T =

I =

D =

S =

Total TMU = 610

Time (Hour)

= Total TMU * 0.00001

= 610×0.00001

= 0.0061

Standard Time

= Time (Hour) * (1+0.15)

= $0.0061 \times (1+0.15)$

= 0.007015 Hour

STAGE 4

PROCESS 2

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Reach brush and apply promoter around hinge bracket (side) exist on the beam

Frequency (*If user leave it blank means it does not have value)

Rf = 12

Cf =

Activity Sequence = A1 B0 G1 - A1 B0 P6 - 12 [U10] - A1 B0 P1 - A0

= (1*10) + (0*10) + (1*10) + (1*10) + (0*10) + (6*10) + (12*10*10) + (1*10) + (0*10) + (1*10) + (0*10)

= 10 + 10 + 10 + 60 + 1200 + 10 + 10 = 1310

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 1310

Transportation =

Inspection =

Delay =

Storage =

Total TMU = 1310

Time (Hour)

= Total TMU * 0.00001

= 1310 * 0.00001

= 0.0131

Standard Time

= Time (Hour) * (1+0.15)

= 0.0131 * (1+0.15)

= 0.015065 Hour

STAGE 4

PROCESS 3

Type of move = Tool Use (ABG ABP U ABP A)

Detail or name of sequence = Reach the soft cloth with chemical liquid and do the cleaning for entire beam

Frequency (*If user leave it blank means it does not have value)

Rf = 4

Cf =

Activity Sequence = A1 B0 G1 - A1 B0 P6 - 4 [U24] - A1 B0 P1 - A0

= (1*10) + (0*10) + (1*10) + (1*10) + (0*10) + (6*10) + (4*24*10) + (1*10) + (0*10) + (1*10) + (0*10)

= 10 + 10 + 10 + 60 + 960 + 10 + 10 = 1070

Classification Time (TMU) (*If user leave it blank means = 0)

Operation = 110

Transportation = 960

Inspection =

Delay =

Storage =

Total TMU = 1070

Time (Hour)

= Total TMU * 0.00001

= 1070 * 0.00001

= 0.0107

Standard Time

= Time (Hour) * (1+0.15)

= 0.0107 * (1+0.15)

= 0.012305 Hour

STAGE 4

Sum of standard time

$$= 0.007015 + 0.015065 + 0.012305$$

$$= 0.034385$$

$$= 0.03 \text{ *hour decimal places are 2}$$

Sum of OTIDS for stage 1

$$\text{Operation} = 610 + 1310 + 110 = 2030$$

$$\text{Transportation} = 960$$

$$\text{Inspection} = 0$$

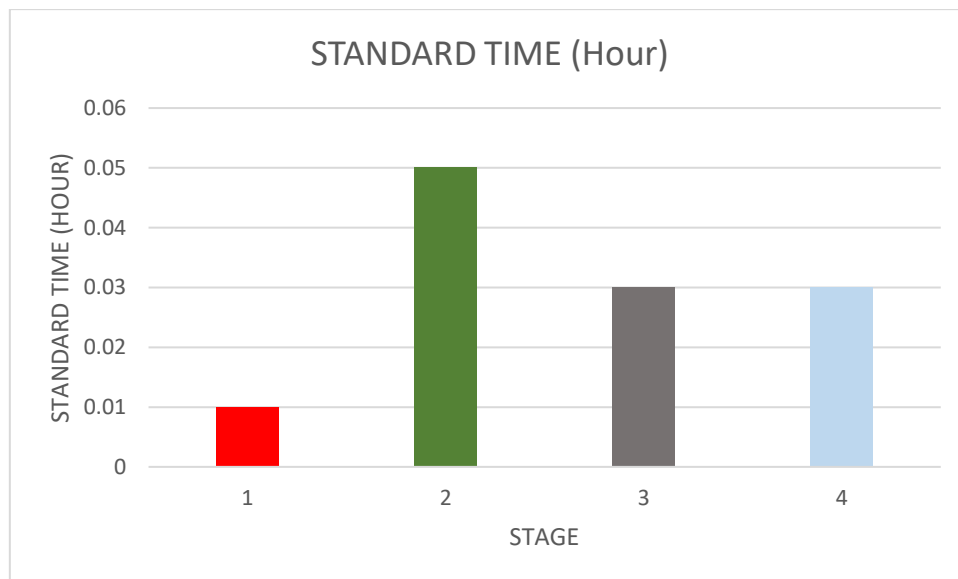
$$\text{Delay} = 0$$

$$\text{Storage} = 0$$

RESULT OUTPUT PAGE

Histogram compare the sum of standard time for every stage.

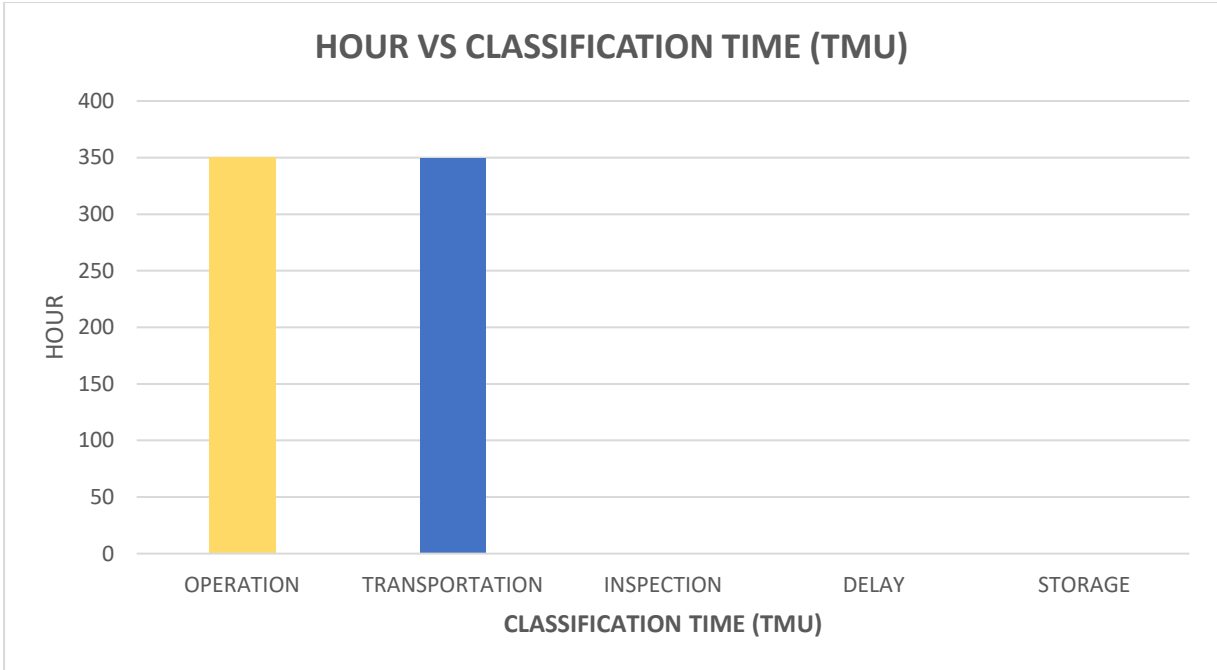
STAGE	STANDARD TIME (Hour)
1	0.01
2	0.05
3	0.03
4	0.03



Compare the sum of OTIDS in every stage.

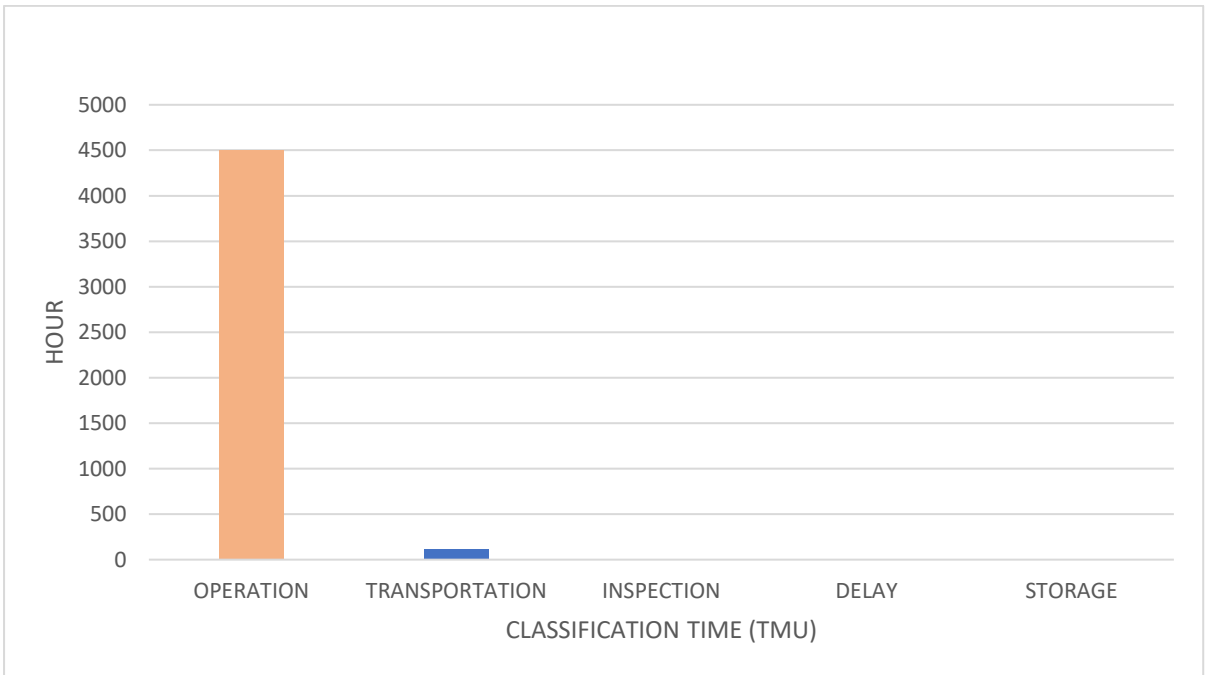
STAGE 1

CLASSIFICATION TIME (TMU)	HOUR
OPERATION	350
TRANSPORTATION	350
INSPECTION	0
DELAY	0
STORAGE	0



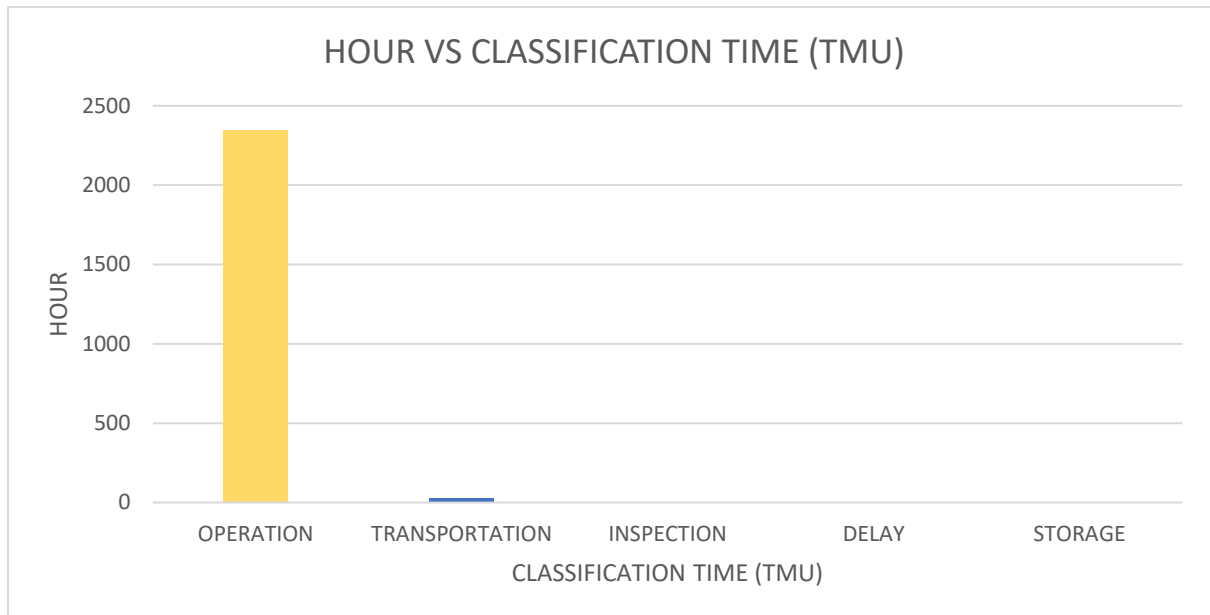
STAGE 2

CLASSIFICATION TIME (TMU)	HOUR
OPERATION	4500
TRANSPORTATION	120
INSPECTION	0
DELAY	0
STORAGE	0



STAGE 3

CLASSIFICATION TIME (TMU)	HOUR
OPERATION	2350
TRANSPORTATION	30
INSPECTION	0
DELAY	0
STORAGE	0



STAGE 4

CLASSIFICATION TIME (TMU)	HOUR
OPERATION	2030
TRANSPORTATION	960
INSPECTION	0
DELAY	0
STORAGE	0



IF POSSIBLE, CAN MAKE THE GRAPH LIKE THIS

CLASSIFICATION TIME (TMU)	STAGE 1	STAGE 2	STAGE 3	STAGE 4
OPERATION	350	4500	2350	2030
TRANSPORTATION	350	120	30	960
INSPECTION	0	0	0	0
DELAY	0	0	0	0
STORAGE	0	0	0	0

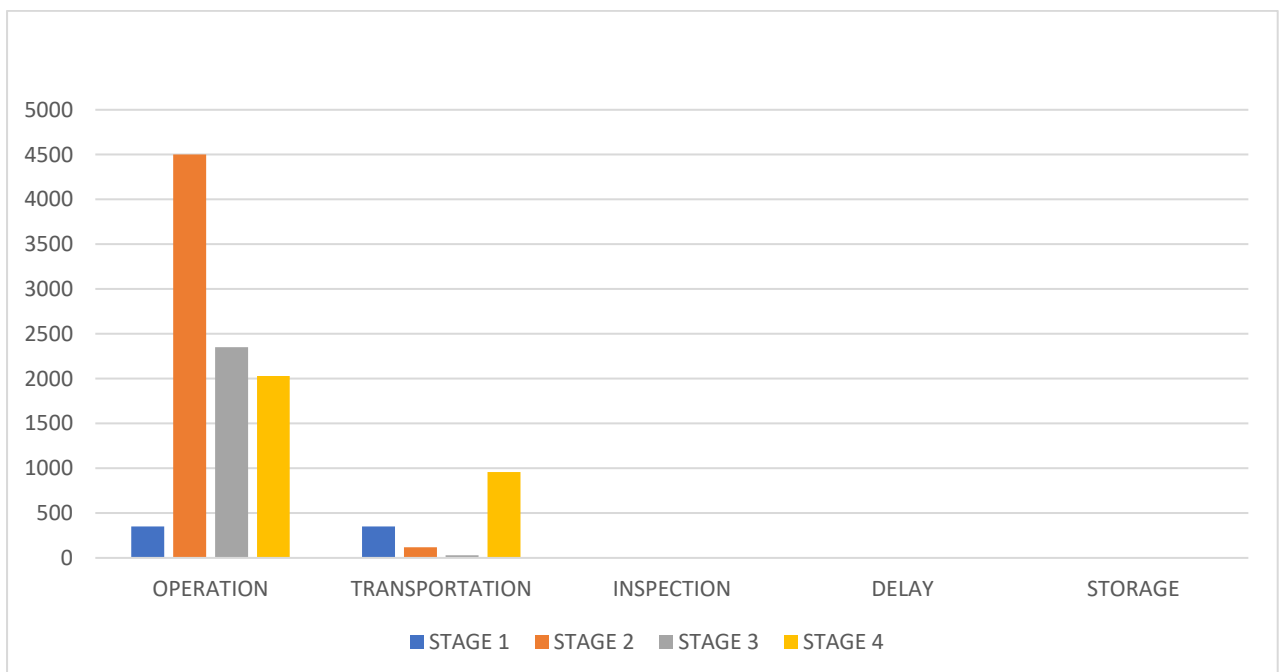


Table for every information that user key-in.

NO.	STAGE 1	ACTIVITIES SEQUENCE	FREQUENCY		CLASSIFICATION TIME (TMU)					TOTAL TMU	Time (hour)	Standard time
			rf	cf	O	T	I	D	S			
1.	Walk 16 steps with the beam and set it on the jig by using finger to spin the locator pin approximately 8 turning [OB side]	A32 B0 G6- A1 B0 P3- U10- A1 B0 P1- A0			220	320				540	0.0054	0.00621
2.	Secure beam with Qty 3 clamps provided on assembly jig.	A3 B0 G6 - A1 B0 P6 - A0			130	30				160	0.0016	0.00184
SUM					350	350						0.00805 @ 0.01

NO.	STAGE 2	ACTIVITIES SEQUENCE	FREQUENCY		CLASSIFICATION TIME (TMU)					TOTAL TMU	Time (hour)	Standard time
			rf	cf	O	T	I	D	S			
1.	Walk 3 steps to get sellotape and return.	A6 B0 G1- A6 B0 P0- A0			10	120				130	0.0013	0.0015
2.	Do masking on clipping plates with care and precision.	A1 B0 G1- M3 X196 I3- A0			2040					2040	0.0204	0.0235
3.	Reach the promoter and apply it on the rivetted area with care and precisely [30 rivets]	A1 B0 G1- A1 B0 P6- 39U6- A1 B0 P1- A0	39		2450					2450	0.0245	0.0282
SUM					4500	120						0.0532 @0.05

NO.	STAGE 3	ACTIVITIES SEQUENCE	FREQUENCY		CLASSIFICATION TIME (TMU)					TOTAL TMU	Time (hour)	Standard time
			rf	cf	O	T	I	D	S			
1.	Reach cleco plier on the rack to tighten the locater pin (8x)	A1 B0 G1 - A3 B0 P3 - U10 - A1 B0 P0 - A0			190					190	0.0019	0.002185
2.	Reach driller and drill cleats (4.83mm)	A1 B0 G3 - A1 B3 P6 - 4U6 - A1 B0 P1 - A0	4		400					400	0.004	0.0046
3.	Reach F clammer and and walk 1 step to OB side and adjust it with hinge bracket and dowel on the beam	A1 B0 G3 - A3 B0 P10 - A0			140	30				170	0.0017	0.001955
4.	Drill 4 holes while sitting (4.1mm - 4.7mm - 4.83mm)	3[A1 B10 G3 - A1 B10 P6 - 4U3 - A1 B10 P0 - A0]	4	3	1620					1620	0.0162	0.01863
SUM					2350	30						0.02737 @0.03

NO.	STAGE 4	ACTIVITIES SEQUENCE	FREQUENCY		CLASSIFICATION TIME (TMU)					TOTAL TMU	Time (hour)	Standard time
			rf	cf	O	T	I	D	S			
1.	Walk 30 steps to ovecoat room to do a fillet and adjust the beam in its position on the table	A54 B0 G3- A1 B0 P3- A0			610	120				610	0.0061	0.007015
2.	Reach brush and apply promoter around hinge bracket (side) exist on the beam	A1 B0 G1- A1 B0 P6- 12 [U10]- A1 B0 P1- A0	12		1310					1310	0.0131	0.015065
3.	Reach the soft cloth with chemical liquid and do the cleaning for entire beam	A1 B0 G1- A1 B0 P6- 4 [U24]- A1 B0 P1- A0	4		110	960				1070	0.0107	0.012305
SUM					2030	960						0.034385 @ 0.03