

**VERIFICATION PROCEDURE**  
**For**  
**MECHANICAL COMPACTOR**

**I. Equipment :**

- A. Balance
- B. Manual Rammer
- C. Straightedge
- D. No. 4 Sieve
- E. Mixing Pans
- F. Pointed Trowel
- G. Graduated Cylinder
- H. Moisture Content Containers
- I. Manual Type Compaction Mold
- J. Filter Paper
- K. Ruler
- L. Compaction Form
- M. Pencil or Pen
- N. Stable Compaction Base
- O. Spatula
- P. Scoop
- Q. Water
- R. Drying Oven

**II. Mechanical Compactor Operational Quality Inspection:**

Check physical condition, operation, and any other listed on the verification of Mechanical Compactor Form.

**III. Sample :**

Material of suitable size and composition to achieve a stable compaction effort.

**IV. Mechanical Compaction Procedure :**

Thoroughly mix and reduce sample to proper testing size. Determine and add required amount of water to material and Thoroughly mix together. Place material in compaction mold and compact according to required procedure. Repeat action for required number of layers. After completion of compaction process remove collar from mold strike off excess material, filling in any voids, weigh, and record. Extrude sample from mold, remove moisture content from sample according to procedure . Weigh and record weight of moisture content sample, place in appropriate Drying oven , remove after drying to constant weight. After sample cools to a comfortable handling temperature weigh and record. Calculate wet density, moisture content, dry weight density, plot compaction curve on graph paper. Determine and record Dry weight density.

#### **V. Manual Compaction Procedure :**

Thoroughly mix and reduce sample to proper testing size. Determine and add required amount of water to material and Thoroughly mix together. Place material in compaction mold and compact according to required procedure. Repeat action for required number of layers. After completion of compaction process remove collar from mold strike off excess material filling in any voids, weigh, and record. Extrude sample from mold, remove moisture content from sample according to procedure . Weigh and record weight of moisture content sample, place in appropriate Drying oven , remove after drying to constant weight. After sample cools to a comfortable handling temperature weigh and record. Calculate wet density, moisture content, dry weight density, plot compaction curve on graph paper. Determine and record Dry weight density.

#### **VI. Density Comparison :**

Determine the percent difference of maximum dry weight density for a single set of data. If the percent Difference is equal to or less than 2.0, the mechanical compactor is satisfactory for immediate use. If the percent difference is greater than 2.0, then obtain two additional sets of data. Use the same soil sample previously prepared but not compacted. Determine the average percent difference values for the three sets of data. If the Difference is equal to or less than 2.0, the mechanical compactor is satisfactory for immediate use. If the percent difference is greater than 2.0, then adjust the weight of the rammer. Making changes in the weight of the mechanical rammer should be done with due consideration to good workmanship. Makeshift modifications that could affect the operation of the mechanical compactor are not permitted. The maximum allowable variation in the weight of the mechanical rammer is as follows:

The total mass added to the original weight of the rammer as received from the manufacturer must not exceed ten percent of its original weight. If it is necessary to add more than ten percent, the mechanical compactor is to be rebuilt or repaired.

**STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT**

**VERIFICATION OF  
MECHANICAL COMPACTOR  
Verification Procedure used: DOTD A1-A**

Verification Frequency: 12 Months                      Previous verification date: \_\_\_\_\_  
 Date of verification: \_\_\_\_\_                      Next verification due: \_\_\_\_\_  
 Identification no.: \_\_\_\_\_                      Mfg./distributor: \_\_\_\_\_  
 Verified By: \_\_\_\_\_                      Verification equip. used: Manual hammer no. \_\_\_\_\_  
 Mold no.: \_\_\_\_\_ Balance no.: \_\_\_\_\_ Oven no.: \_\_\_\_\_  
 Straight edge no.: \_\_\_\_\_

Material compacted		Classification	
Initial mass of rammer		Final mass of rammer	

<b>SUMMARY OF RESULTS</b>							
	Curve no. 1		Curve no. 2		Curve no. 3		
Compaction Type	Max. dwd	Opt. moist.	Max. dwd	Opt. moist.	Max. dwd	Opt. moist.	Avg. dwd= (1+2+3) ÷ 3
Manual (A)							(C)
Mech. (B)							(D)
First trial percent difference						% diff.= (B-A/A) x 100	
Second trial percent difference						%diff.= (D-C/C) x 100	
	Curve no. 4		Curve no. 5		Curve no. 6		
Compaction Type	Max. dwd	Opt. moist.	Max. dwd	Opt. moist.	Max. dwd	Opt. moist.	Avg. dwd= (4+5+6) ÷ 3
Mech. (E)							(F)
Third trial percent difference						% diff.= (F-C/C) x 100	

Recommended action: Repair \_\_\_\_\_ Replace \_\_\_\_\_ None \_\_\_\_\_

Comments: \_\_\_\_\_