

# **Tape & Reel Packaging Instruction**

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# Tape & Reel Packaging Instruction

## 1.0 PURPOSE

This specification describes the procedure for “Tape & Reel” packaging of Johanson Manufacturing Corp. components, including the Cera-Trim, Thin-Trim, Ceramic Trimmer, and Giga-Trim capacitors.

## 2.0 SEE DISTRIBUTION UNDER DOCUMENTATION IDENTIFICATION FOUND IN ETQ DATA BASE FOR THIS SPECIFICATION

## 3.0 REFERENCES

- 3.1 EIA-481-1
- 3.2 EIA-481-2
- 3.3 JMC OUTLINE DRAWING NO.'S

Giga-Trim	Cera-Trim	Thin-Trim	Ceramic Trimmer
17273	2320	9401SL-1	9341SL-1
17273-1	2320SL	9401SL-2	9342
27263-2	2320RSM	9402SL-1	9343
27273-3	2321	9402SL-1C	9344
27273-4	2322	9402SL-2	
27273-11		9410	
27283-3		9410SL-1	
27283-11		9410SL-1A	
27285-4		9410SL-2	
47263		9410RPC-1	
47273			
47273-11			
47275-1			
47275-4			
47283			
47285-3			
47473			
47483			
57273-1			
57285-3			
57573			

- 3.4 R366-0 Tape & Packaging
- 3.5 I006 JMC Reference Manual

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## 4.0 MATERIAL OVERVIEW

- 4.1 Carrier Tape & Sealing Tape shall be manufactured in accordance with the specifications listed with their individual JMC Detail Drawings. In addition to these drawings, the tapes shall have the properties described in 4.0.
- 4.2 The carrier and sealing tape material shall not adversely affect the mechanical and electrical characteristics of the component.
- 4.3 The tapes shall be capable of withstanding storage of the taped components without giving off vapors which would affect the solderability of the components.
- 4.4 The tensile strength of the sealing tape shall exceed three pounds force.
- 4.5 The tapes shall not age during storage and as a result lose strength in such a way that they break as the tape is unreeled, either by hand or by machine.
- 4.6 The carrier reels shall be manufactured in accordance with the specifications listed with their individual JMC detail drawing. In addition to these drawings, the reels shall have the following properties:
  - 4.6.1 The carrier reels shall be capable of withstanding a storage temperature of 150°F without adversely affecting dimensions which would affect the automatic dispensing of components.

## 5.0 AVAILABILITY OVERVIEW

- 5.1 The following JMC components are available in Tape & Reel Packaging:
  - 5.1.1 Cera-Trims:
    - 2320-Dash No.
    - 2320-Dash No. 'SL'
    - 2320-Dash No. 'RSM'
    - 2321-Dash No.
    - 2322-Dash No.
  - 5.1.2 Thin-Trims:
    - 9401-Dash No. 'SL-1'
    - 9401-Dash No. 'SL-2'
    - 9402-Dash No. 'SL-1'
    - 9402-Dash No. 'SL-2'
    - 9402-Dash No. 'SL-1C'
    - 9410-Dash No. 'SL-1'
    - 9410-Dash No. 'SL-1A'
    - 9410-Dash No. 'SL-2'
    - 9410-Dash No. 'RPC-1'
    - 9440-Dash No. 'SL-1'
    - 9440-Dash No. 'SL-1C'
    - 9450-Dash No. 'SL-1C'

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## 5.1.3 Giga-Trims:

27263-2	47275-1
27273-3	47275-4
27273-4	47283-Dash No.
27273-11	47285-3
27283-3	47473
27283-11	47483
27285-4	57273
47263	57273-1
47273	57283-1
47273-Dash No	57285-3

## 5.1.4 Ceramic Trimmers:

9341-Dash No. SL-1

9342-Dash No.

9343-Dash No.

9344-Dash No.

## 6.0 GENERAL OVERVIEW:

6.1 Tape Leader, (as measured from the first sprocket hole after the last loaded pocket). SEE R366-0.

6.1.1 The leader shall be between 15.35" and 22.05".

6.1.2 Within the leader there shall be a minimum of 6.30" of empty embossed pockets, sealed by the cover tape.

6.2 Tape Trailer, (as measured from the first sprocket hole after the last loaded pocket). SEE R366-0.

6.2.1 There shall be a minimum of 6.30" of empty embossed pockets sealed by the cover tape.

6.2.2 The Trailer must release freely from the reel as the tape is unreeled.

6.3 The splicing of Carrier Tape or Seal (Cover) Tape is not allowed.

6.4 Tapes in adjacent layers shall not stick together when wound on the carrier.

6.5 In no case shall there be two consecutive components missing between the first and the last part of the reel. A maximum of 0.25% of the components may be missing on each reel.

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6.6 Components shall be placed in the carrier tape so that the color code is visible, (when applicable), and the mounting plane is facing the bottom of the embossed carrier. SEE R366-0.

6.7 Cera-Trims, 2320, 2321 and 2322 Dash No., shall be positioned in the embossed pocket with the housing chamfer in the upper right hand corner, when the tape sprocket holes are on the top.

6.7.1 Reverse Surface Mount (RSM)Cera-Trims, 2320-Dash No. 'RSM', shall be positioned in the embossed pocket with the housing chamfer in the upper left hand corner, (when the tape sprocket holes are on top).

NOTE: The mounting plane of a 'RSM' Cera-Trim is the same plane as the tuning access hole.

6.7.2 Strip Line(SL) Cera-Trims, 2320-Dash No. 'SL', shall be positioned in the embossed pocket with the housing chamfer in the upper left hand corner, (when the tape sprocket holes are on the top).

6.8 Thin-Trims, 9402, 9410, 9440, & 9450 shall be positioned with the color code dot in the top of the embossed carrier pocket, (when the tape sprocket holes are on top).

6.8.1 Thin-Trim 9410 Dash No. 'RPC-1' shall be positioned with the color code dot facing the bottom of the embossed pocket and with the rotor terminal in the top of the embossed carrier pocket.

6.8.2 Thin-Trims, 9401 Series shall be positioned with the color code dot on the left side of the embossed pocket, ( when the tape sprocket holes are on top).

6.9 Giga-Trims, 27263-2, 27273-3, 27273-4, 27273-11, 27283-3, 27283-11, 27285-4, 47263, 47273-Dash No., 47283-Dash No, 47473, 47483, and 57283-1 shall be positioned with the bushing terminal, '**dog leg**' facing the sprocket holes of the embossed carrier tape.

NOTE: The mounting plane of a Giga-Trim is opposite the Tuning Rotor. 47275-1, 47275-4, 47285-3, and 57285-3, termination orientation is not required, load unit into pocket inserting stator and entry first as the pocket/unit configuration allows.

6.10 Ceramic Trimmers, 9342 Dash No., 9343-Dash No., and 9344 Dash No., shall be positioned with the base chamfer down in the embossed pocket, (when the tape sprocket holes are on top).

NOTE: The mounting plane of a Ceramic Trimmer is the side opposite the tuning rotor.

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- 6.11 Ceramic Trimmers, 9341-Dash No. SL-1 shall be positioned with the terminals on the bottom of the pocket. There is no rotor orientation required.
- 6.12 The components shall stay within the cavity of the carrier tape and not lift up or Adhere to the seal tape when pulled away.
- 6.13 The peel strength of the seal tape, when measured at 175° to 180° with respect to the longitudinal axis of the carrier tape and with a peel off speed between 290mm/minute as follows:
  - 6.13.1 Cera-Trims and Thin-Trims shall have a peel strength of 50 +40/-25 grams.
  - 6.13.2 Giga-Trims shall have a peel strength of 70 +/- 60 grams.
- 6.14 There shall be no tearing or resulting elongation of sprocket holes.
- 6.15 There shall be no evidence of delamination between the carrier tape and the cover tape.
- 6.16 The cover tape shall not cover any part of the sprocket holes.
- 6.17 The cover tape/ carrier tape assembly width shall not exceed the maximum allowable width of the appropriate carrier tape.
- 6.18 All components shall lift out freely from the embossed pockets with a straight vertical movement.
- 6.19 Part Number Suffix & Standard Part Quantity per Reel. ( Unless otherwise specified, the suffix R1 indicates a generic 7" reel and R2 indicates a generic 13" reel.
  - 6.19.1 The suffix R1 shall indicate a 7" reel.
  - 6.19.2 The suffix R2 shall indicate a 13" reel.
  - 6.19.3 The suffix R3 shall indicate 1500 units on a 7" reel.
  - 6.19.4 The suffix R4 shall indicate 6000 units on a 13" reel.
  - 6.19.5 The suffix R5 shall indicate 400 units on a 13" reel.
  - 6.19.6 The suffix R7 shall indicate 3000 units on a 13" reel.
  - 6.19.7 The suffix R8 shall indicate 2000 units on a 7" reel.
  - 6.19.8 The suffix R9 shall indicate 1000 units on a 7" reel.
  - 6.19.9 The suffix R10 shall indicate 750 units on a 13" reel.
  - 6.19.10 The suffix R11 shall indicate 500 units on a 13" reel.
  - 6.19.11 The maximum number of Cera-Trims on a 7" reel is 500.
  - 6.19.12 The maximum number of Cera-Trims on a 13" reel is 2500.
  - 6.19.13 The maximum number of 9401, 9402, 9440, and 9450 Thin-Trim on a 7" reel is 1500, (9401 SL-2 & 9402 SL-2 maximum is 750.
  - 6.19.14 The maximum number of 9401, 9402, 9440, and 9450 Thin-Trims on a 13" reel is 6000, (9401 SL-2 & 9402 SL-2 maximum is 3500.
  - 6.19.15 The maximum number of 9410 Thin-Trims on a 13" reel is 3000.

**NOTE: This Thin-Trim is not available on a 7" reel.**

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- 6.19.16 The maximum number of 9341SL-1 on a 13” reel is 4000.
  - 6.19.17 The maximum number of 27263-2 & 47263 Giga-Trims on a 13” reel is 1000.  
**NOTE: These Giga-Trims are not available on a 7” reel.**
  - 6.19.18 The maximum number of 27273, 47273, and 47473 Giga-Trims on 13” reel is 400.  
**NOTE: These Giga-Trims are not available on a 7” reel.**
  - 6.19.19 The maximum number of 27283, 47283, 47483, and 57283-1 Giga-Trims on 13” reel is 750.  
**NOTE: These Giga-Trims are not available on a 7” reel.**
  - 6.19.20 The maximum number of 47275-1 & 47275-4 Giga-Trims on a 13” reel is 500.  
**NOTE: These Giga-Trims are not available on a 7” reel.**
  - 6.19.21 The maximum number of 47285-3 and 57285-3 is 1250.  
**NOTE: These Giga-Trims are not available on a 7” reel.**
  - 6.19.22 The maximum number of 9342 Dash No. units on a 7” reel is 2000.
  - 6.19.23 The maximum number of 9343 Dash No. and 9344 Dash No. units on a 7” reel is 1000.
  - 6.19.24 The maximum number of 27285-4 Giga-Trims on a 13” reel is 1300.
  - 6.19.25 Non-Standard component quantities are available on request. Contact JMC Engineering for more information.
- 6.20 Each reel shall be marked with the following information:
- 6.20.1 JMC Item Number
  - 6.20.2 Customer Part Number (When required)
  - 6.20.3 Lot Number
  - 6.20.4 Capacity Range
  - 6.20.5 Quantity
  - 6.20.6 Working DC Voltage
  - 6.20.7 **NOTE: For the 2322 Series Cera-Trim, affix the “Lead Free” label that is used on bulk packed 2322 Cera-Trims as attached in E285.**
  - 6.20.8 **NOTE: For the unit 27285-4, affix the “Lead Free” label that is attached in E285.**
- 6.21 Minimum bending radius for components and carrier tape(See R366-0) is as follows:
- 6.21.1 For 12mm carrier tape, the minimum bending radius is 25mm(0.984”). No damage permissible.
  - 6.21.2 For 16mm and 24mm carrier tape, the minimum bending radius is 30 mm (1.181”). No damage permissible.
  - 6.21.3 For 32mm carrier tape, the minimum bending radius is 50mm (1.969”). No damage permissible

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## **7.0 TAPE REELING PROCEDURE:**

- 7.1 At the start of each shift, turn on the “Shoe Heaters” and let preheat for 15 minutes. “Shoe” temperature should be set at approximately 300°F.**
- 7.2 Regulate the air pressure on the Shoes to approximately 10 PSI.**
- 7.3 Load the required carrier tape, pocket opening facing up, on the right side reel holder. Load the required Seal Tape on the center reel holder with the Seal Tape orientated so that the “glossy” side is facing up when applied to the Carrier Tape. Load the required Tape & Reel Assembly Reel on the left reel holder with the label side of reel facing out.**
- 7.4 Adjust the Carrier Tape Guide so that the carrier tape moves freely but without so much freedom that the carrier tape is allowed to drift with relation to the seal tape. Adjust the Seal Tape Guide so that the seal tape is located over the carrier tape as described herein.**
- 7.5 When the Heat Shoes have been preheated and the tapes properly aligned, run approximately 12” of tape for a Peel Strength test. Peel the seal tape off of the carrier tape and measure its retention force using a force gage that resolves to 2 grams or better. Peel the seal tape back at an angle of 180° to the carrier tape. The retention force must be within the range specified herein. Adjust the Shoe temperature and pressure to provide the required retention force. The seal tape should lay flat over the carrier tape. See this specification and R366-0 for further package requirements.**
- 7.6 For each M.O. started on each shift, a “First Piece” sample is sent to inspection for approval. This sample is between 12” and 24” long and is made from the material that will be used when the M.O. is produced.**
- 7.7 When the “First Piece” has been accepted by Inspection, production can begin. At the start of each reel, prepare a 12” to 24” section of empty tape. This section of tape is sent to Inspection for each completed reel.**
- 7.8 Refer to this specification for tape leader and follow dimensions and package quantity, as well as R366-0 for component orientation.**
- 7.9 Apply appropriate labels and bag in accordance with the packaging code and as described by the JMC Reference Manual, I006.**

## **8.0 EXHIBITS:**

**R366-0**