



An American-Standard Company

## SERVICE MANUAL 4574-J

OPERATING VALUES FOR 60 HERTZ PV-250 TRACK RELAY  
WITH 115 VOLT LOCAL 500 TURN TRACK COIL

N342555-811, 2F-2B CONTACTS  
LOCAL 0.165 AMPERE AT 115 VOLTS

\* \* \* \* \*

Information for adjustment is given in Service Manual 4574.

Check the current operating values using Figure 17 of Service Manual 5036 with 15 volts or more at the track transformer secondary. This will insure that the resistance in series with the track winding is sufficient to provide suitable phase relations. Test circuit Figure 18 should be used if voltage values are to be checked also. Test circuits Figures 19 and 20 may be used instead of Figures 17 and 18, but usually they are less convenient.

TABLE I. TEST OPERATING VALUES

Torque Inch-Grains	Pick Up		Full Stroke		Min. Drop Away % of Actual PU	
	Volts	Amps	Volts	Amps	Shop	Field *
325	2.3	.061	2.76	.075	90	80

The above values are 13% higher than ideal and apply to test from single phase supply with resistance in series with track winding.

\* It is recommended that relays be taken out of service if the Drop-Away falls below the value shown for field test.

TABLE II. OPERATING VALUES AT IDEAL PHASE RELATIONS

Pick Up		Full Stroke		Min. Drop Away % of Actual PU
Volts	Amps	Volts	Amps	
2.2	.055	2.4	.062	90

The above values are based on ideal phase relations, track volts lead line volts 90° and track amperes lead line volts 24°.

June, 1977  
B-77-100-1544-2

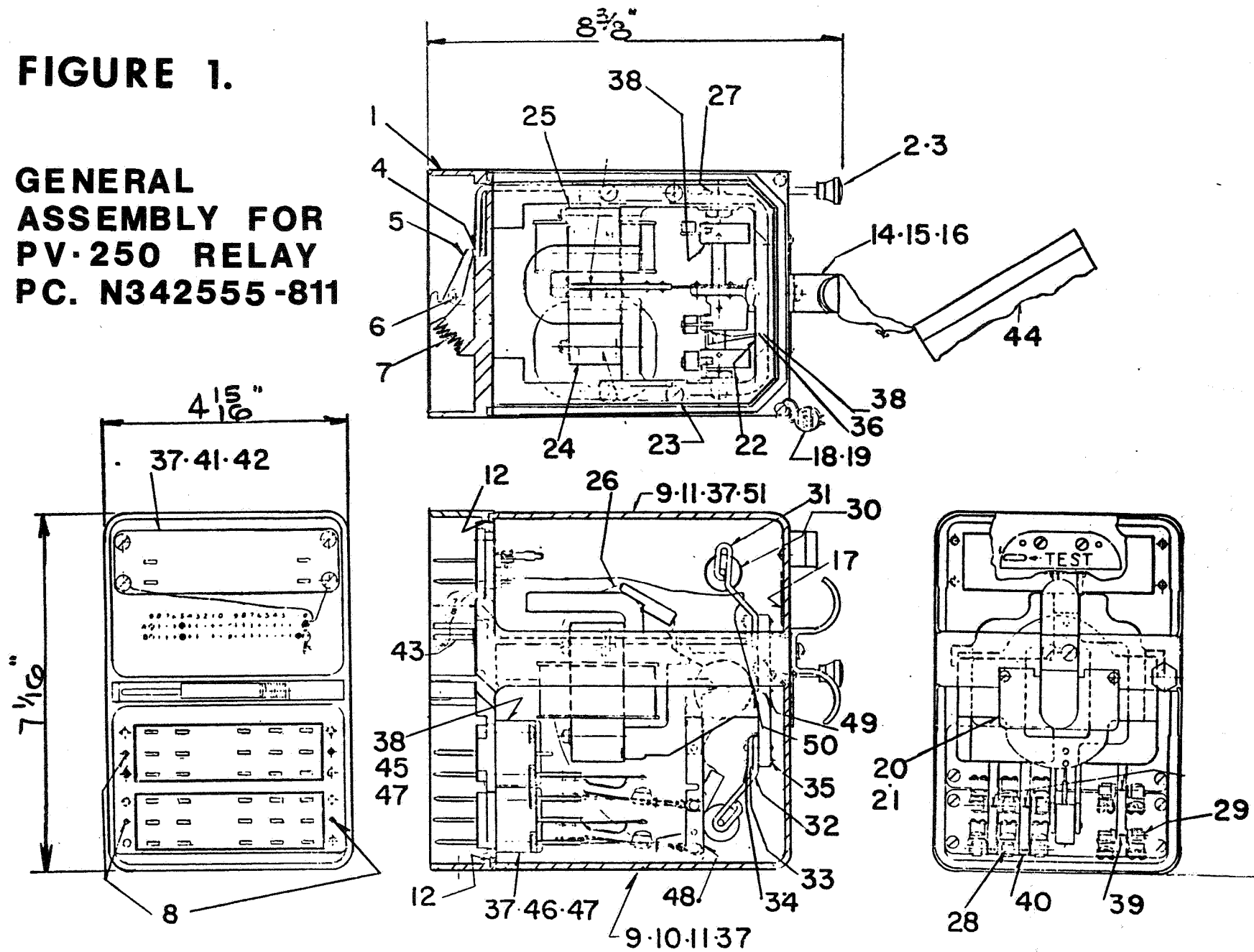
UNION SWITCH & SIGNAL DIVISION  
WESTINGHOUSE AIR BRAKE COMPANY  
Swissvale, PA 15218

PRINTED  
IN  
U.S.A.



**FIGURE 1.**

**GENERAL  
ASSEMBLY FOR  
PV-250 RELAY  
PC. N342555-811**





PARTS LIST FOR PV-250 60 HZ. TRACK RELAY

WITH 115V LOCAL 500 TURN TRACK COIL

WITH PIECE NO.

N342555-811

Refer to Figure #1

ITEM NO.	DESCRIPTION	PART NO.
1	Frame	M433493
2	Rod Latch	M375913
3	Knob Knurled Th. Nut	J770536
4	Nut Mach.	M395496
5	Latch	M321728
6	Pin S. Stl. Rl. Elas. Stop	J048716
7	Spring Plated	M321861
8	Pin Roll Elas. Stp. Nut	J487087
9	Screw	M321747
10	Cover Bottom J776597	M439922
11	Scr #8-32 x 7/16 Fil. Stl. T.P.	J522042
12	Gasket Rubber	J047081
13	Scr. 8-32 x 1/4" Rd. Stl. T. Pl.	J052639
14	Handle	M321821
15	Washer #10 Int. Tooth Ph. Bz. N. Pl.	J047710
16	Scr. #10-32 x 3/8" Pan Hd.	J525277
17	Calibration Tag 17A (J791665 Adhesive Film)	S002036
18	Wire Seal 2 Ply 12 4LD SL CTD	A043013
19	Seal Lead	J079351
20	Name Plate M437859	J631005
21	Scr. #4-40 x 3/16" Rd. Stl. (F) T.P.	J525024
22	Bracket Support	M375890
23	Scr. #10-32 x 1/2" Fl. Stl. T.P.	J052091
24	Field Control	N436284
25	Field Local	N251094
26	Vane Assembly	N434594
27	Screw Trunnion	N124889
28	Bushing	M232934
29	Bushing Insulation	M283459
30	Roller	M069693
31	Brk. Upper Roller	M397483
32	Brk. Lower Roller	M161753
33	Plate	M090506
34	Lock Bracket	M109074
35	Rivet	J049812



PARTS LIST FOR PV-250 60 HZ. TRACK RELAY WITH 115V LOCAL  
500 TURN TRACK COIL WITH PIECE NO. N342555-811

(Continued)

ITEM NO.	DESCRIPTION	PART NO.
36	Pin	M381128
37	Washer Tension T.P. 012 x 9/32" OD	J475104
38	Pin	M381129
39	Pin	M232031
40	Pin	M232935
41	Block Terminal	M433457
42	Scr. #8-32 x 7/16	J525106
43	Pin Indexing Elas. Roll Stp.	J487090
44	Parts Bag	N349711-3511
45	Block Contact See Note "A" -0001	N433482
47	Scr. #8-32 x 7/8" Rd. Hd. Stl. T.P.	J052603
48	Arm Operating	N390324
49	Counterweight	M451175-0302
50	Counterweight Locknut	M029956
51	Top Cover	J776598

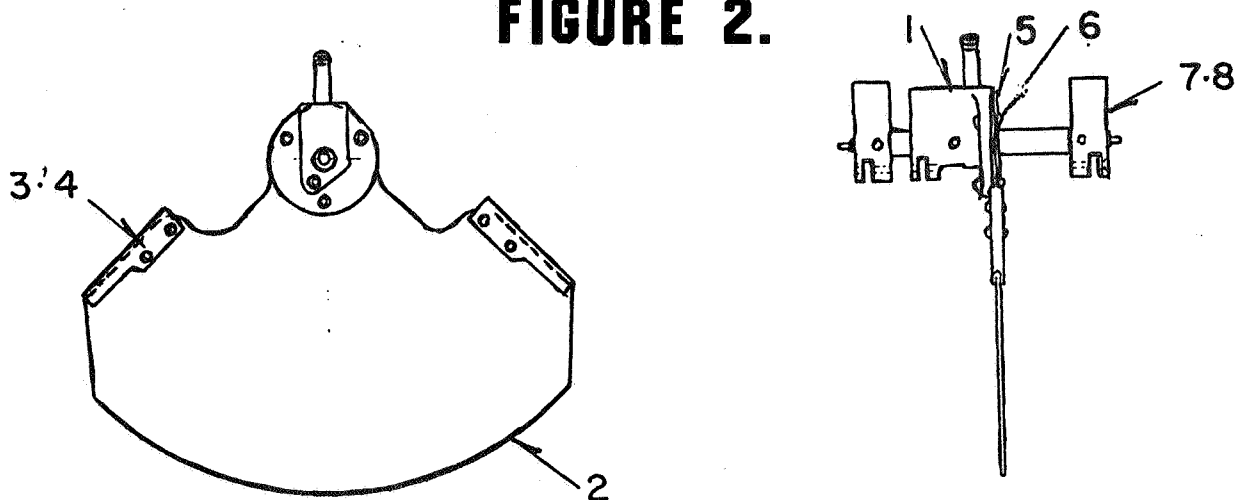
PARTS LIST FOR VANE N-434594

USED ON RELAY PV-250 WITH PC. NO. N342555-811

Refer to Figure 2

ITEM NO.	DESCRIPTION	PART NO.
1	Vane Crank	N380677
2	Vane	M231734
3	Clips Buffer	M130658
4	Rivets #14 x 5/16" Rd. Hd. Ph. Bz.	J049804
5	Washer	M091997
6	Rivets #11 x 5/16" Rd. Hd. Ph. Bz.	J049812
7	Crank RH. Oper. Arm	M381119
8	Rivets #14 x 13/16" Rd. Hd. Ph. Bz.	J049819

**FIGURE 2.**



VANE ASSEMBLY PC.NO. N-434594

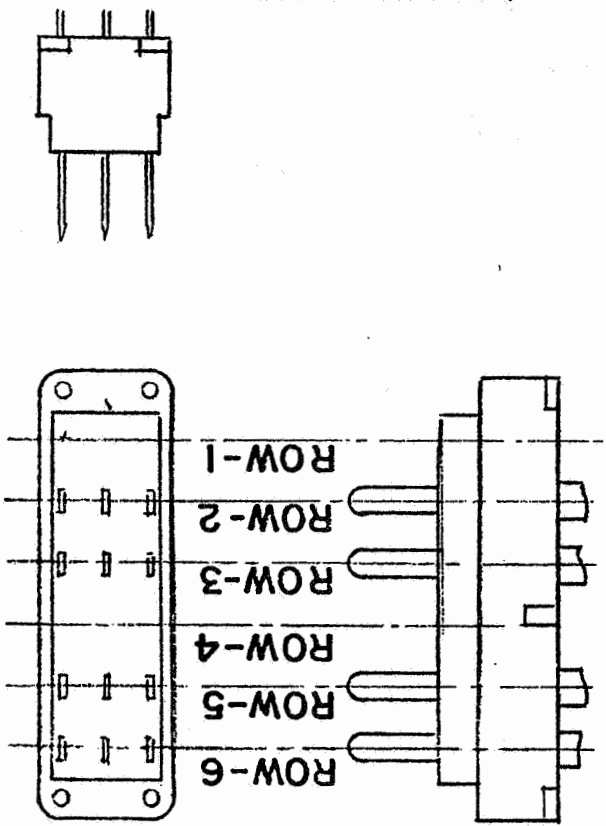


PARTS LIST FOR CONTACT BLOCK  
WITH THE FOLLOWING PC. NO'S

N433482

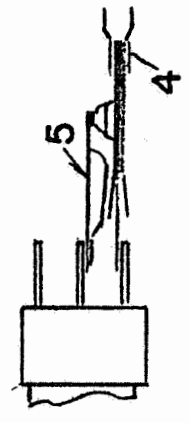
Refer to Figure 3

ITEM NO.	DESCRIPTION	PART NO.
1	Spring Contact	N376007
2	Spring Contact	N376002
3	Finger Contact	M375981
4	Spring Contact	N376006
5	Spring Contact	N376003

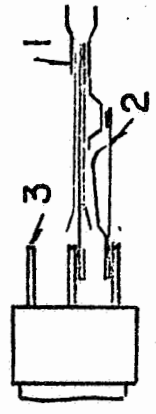


CONTACT BLOCK	CONTACT SECTION ROW					
	6	5	4	3	2	1
N-433482	A	A	-	B	B	-

**FIGURE 3.**



**SECTION "B"**



**SECTION "A"**



PARTS LIST FOR MOUNTING BASE N434647

USED ON RELAY PV-250 WITH PIECE NO.

N342555-811

Refer to Figure 4

ITEM NO.	DESCRIPTION	PART NO.
1	Mounting Base Complete See Note "B"	N434647
2	Mounting Base Only	N434647-009
3	Tag	J075828
4	Cont. Recpt. Solderless, #10 to #12 Wire	J680181
4	Cont. Recpt. Solderless, #14 to #16 Wire	J680165
4	Cont. Recpt. Solderless, #18 to #20 Wire	J680179
5	Meter Test Plug	M322965
6	Insulated Test Plug (For Opening any coil or contact circuit and for removing receptacle springs)	

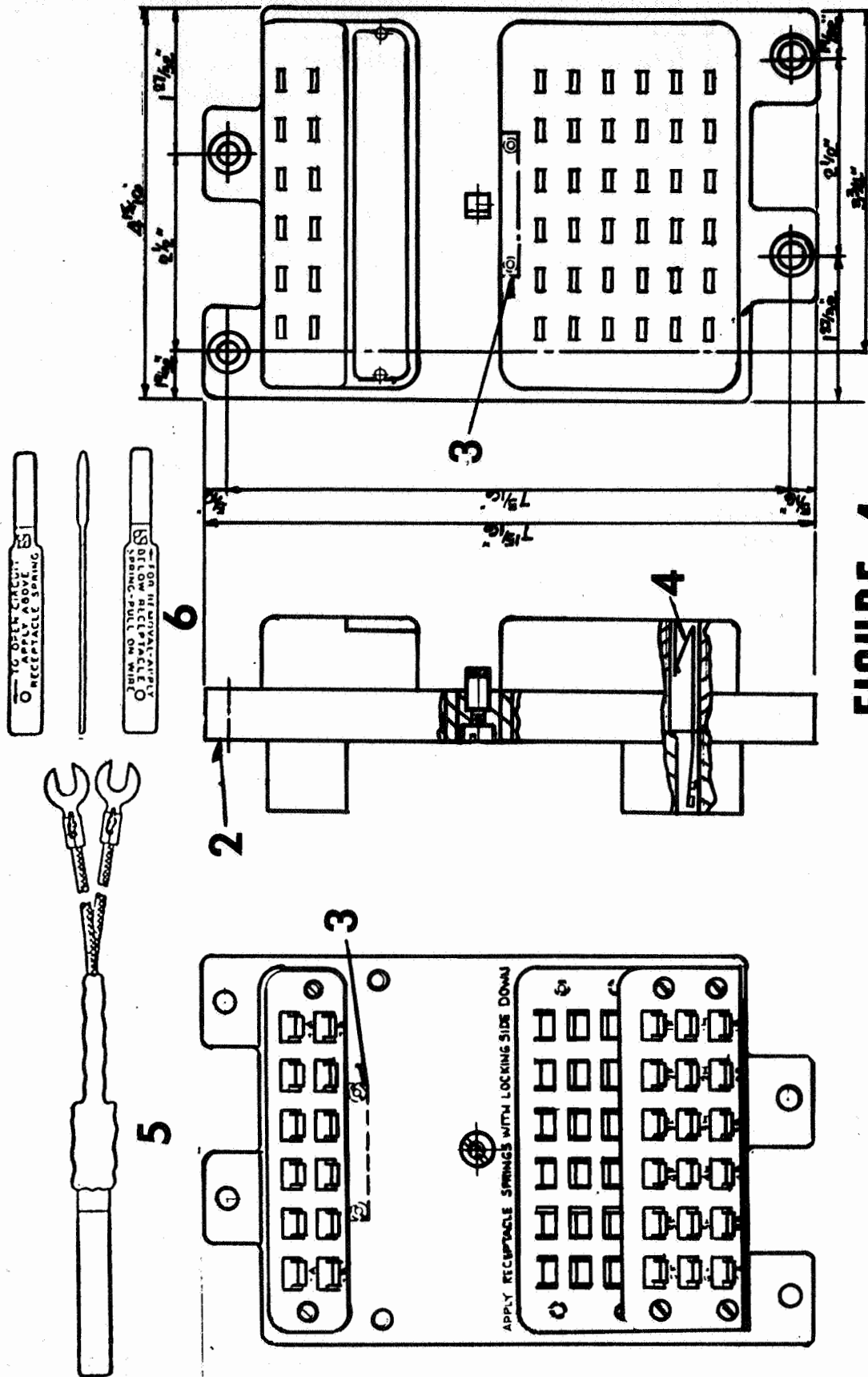
NOTE "B" When Mounting Base complete is ordered a muslin bag of parts 4-1/8" x 5-1/2" is included in the inner carton with the mounting base and instruction prints.

Bag Contains:

- (2) Tags
  - (4) #4-40 x 3/16" Rd. Hd. Screws
  - (4) 1/4" Steel plate washers
  - \* (4) 1/4" -20 x 1-1/4" Rd. Hd. Stl. Screws
  - \* (4) Washers
  - \* (4) 1/4" Steel Lockwashers
  - \* (4) 1/4" 20 Steel Hex Nuts
- and  
(Req'd Quantity) Contact receptacles (solderless) J680165 for #14 to #16 Wire. If other wire size is used request the proper part number as shown in Item 4 when ordering base complete. (i.e. N384243 except using contact receptacles, solderless J680181).

Asterisk (\*) Items are for attaching mounting base to the rack.







## MAINTENANCE NOTICE

**PV-250**

**AC VANE RELAY**

### **Inspection for Loose Counterweights and Loose Trunnion Screw Locknuts**

This Maintenance Notice covers PV-250 ac Vane Relays manufactured from 1984 to Sept. 1988, and with the following Part Numbers and applicable Service Manuals:

RELAY PART NO.	RELAY MANUAL
N322555-001 N322555-901	SM-4574A
N322555-002	SM-4574B
N342555-003 N342555-803 N342555-903	SM-4574C
N322555-004	SM-4574D
N322555-005 N322555-805	SM-4574E
N342555-909 N342555-809	SM-4574F
N322555-010	SM-4574G
N322555-007	SM-4574H
N342555-811	SM-4574J
N322555-008	SM-4574L
N342555-812 N342555-813	SM-4574M
N342555-914	SM-4574N

How to find the date of manufacture? Look at the serial number of the relay.

In the serial number to be found on the nameplate of the relay, the first two digits stand for the week, and the next two digits stand for the year of manufacture of the relay. For example, serial number 4585115 was made during the 45th week of 1985, and was the 115th item of its particular part number.



**UNION SWITCH  
& SIGNAL INC.**

A member of the **ANSALDO** Group

5800 CORPORATE DRIVE  
PITTSBURGH, PA 15237

October, 1988

COPYRIGHT 1988, UNION SWITCH & SIGNAL INC  
PRINTED IN USA

## WARNING

THE FOLLOWING PROCEDURE INVOLVES THE OPENING OF A VITAL RELAY. THIS PROCEDURE MUST BE PERFORMED BY INDIVIDUALS QUALIFIED TO WORK ON VITAL RELAYS.

IF THE FOLLOWING INSPECTION IS TO BE DONE IN THE FIELD, BE CERTAIN TO OBSERVE ALL RULES REGARDING THE SAFE MOVEMENT OF TRAINS BEFORE REMOVING THE RELAY FROM SERVICE.

### Instructions for inspecting for loose counterweights and loose trunnion screw locknuts:

1. Remove the bottom cover from the relay. This exposes the contact assembly. Exercise extreme caution not to disturb the adjustment of the contacts. Remove nameplate to gain access to the counterweight assembly on the vane crank.
2. Carefully rotate the vane so that the counterweight assembly is visible. This will reveal one or more counterweights, with or without a locknut, on the counterweight screw.
3. As shown in the figure below, check to determine if (a) the counterweight and locknut are tight, (b) at least two threads are visible on the counterweight screw end, and (c) the split screw end is slightly spread apart. Tighten any loose counterweights and locknut.
4. Perform a visual inspection of the relay. Check for rubbing vane, debris inside the relay, and for obviously misaligned contacts. Check to see that the vane is approximately centered and that it has the correct amount of end play (0.010 to 0.016 inch). Readjust if required. Check the vane for freedom of movement. Check to see that the operating arms, clips and bushings are in their proper position and are free to move. Using a wrench, check the trunnion locknuts for tightness. Tighten any that are loose.
5. Perform an electrical calibration test in accordance with the applicable service manual. If the relay passes the field limit requirements outlined in the service manual, apply glyptal to the exposed threads of the counterweight screw and the trunnion locknut, as shown in the figure below. The relay can then be sealed and placed in service.
6. If the counterweight screw end cannot be spread, or if any of the checks or calibration tests do not pass, send the relay to US&S Service & Repair in Augusta, Georgia for free-of-charge service.

