4.0 GROUND MANEUVERING

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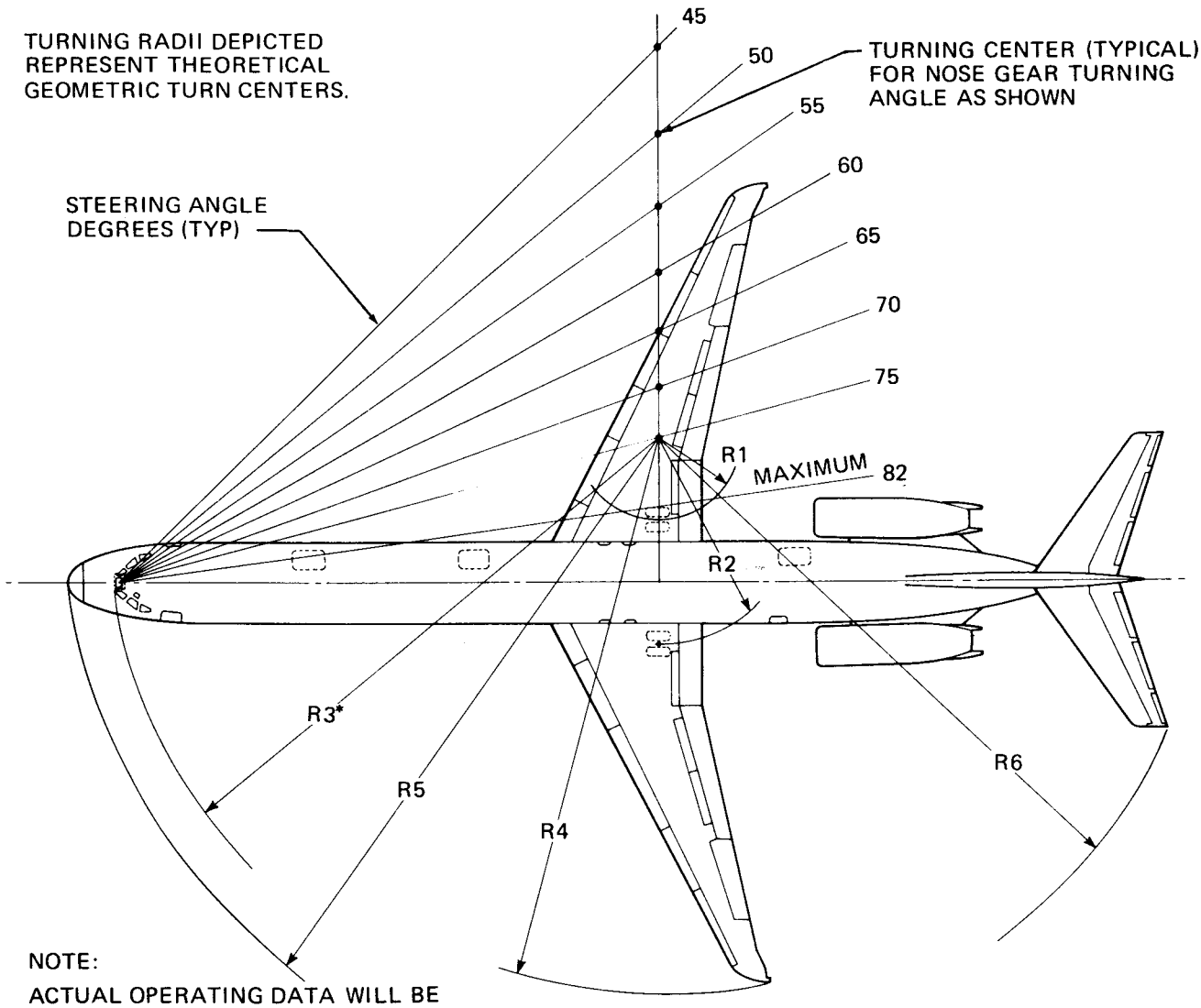
4.1 General Information

This section provides airplane turning capability and maneuvering characteristics.

For ease of presentation, these data have been determined from the theoretical limits imposed by the geometry of the aircraft, and where noted, provide for a normal allowance of tire slippage. As such, it reflects the turning capability of the aircraft in favorable operating circumstances. These data should only be used as guidelines for the method of determination of such parameters and for the maneuvering characteristics of this aircraft type.

In the ground operating mode, varying airline practices may demand that more conservative turning procedures be adopted to avoid excessive tire wear and reduce possible maintenance problems. Airline operating techniques will vary, in the level of performance, over a wide range of operating circumstances throughout the world. Variations from standard aircraft operating patterns may be necessary to satisfy physical constraints within the maneuvering area, such as adverse grades, limited area or high risk of jet blast damage. For these reasons, ground maneuvering requirements should be coordinated with the using airlines prior to layout planning.



NOTE:

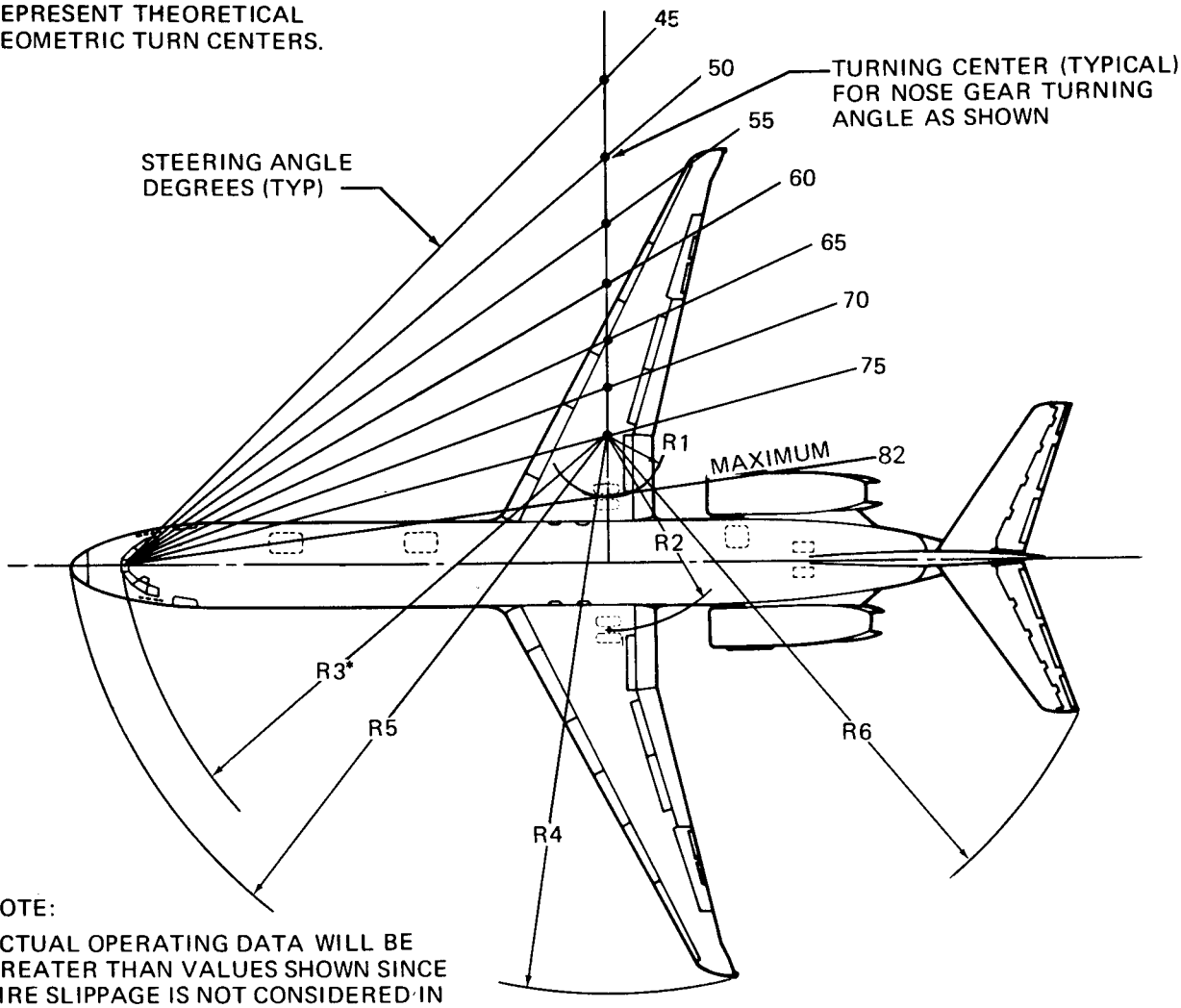
ACTUAL OPERATING DATA WILL BE GREATER THAN VALUES SHOWN SINCE TIRE SLIPPAGE IS NOT CONSIDERED IN THESE CALCULATIONS. CONSULT AIRLINE FOR OPERATING PROCEDURES.

*R-3 IS MEASURED TO OUTSIDE TIRE FACE

STEERING ANGLE (DEGREES)	R-1		R-2		R-3*		R-4		R-5		R-6	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	117.1	35.7	133.8	40.8	145.7	44.4	180.0	54.9	148.8	45.4	160.6	48.9
45	64.1	19.5	80.8	24.6	103.3	31.5	127.3	38.8	107.9	32.9	114.7	35.0
50	52.4	16.0	69.1	21.1	95.4	29.1	115.7	35.3	100.5	30.6	105.6	32.2
55	42.4	12.9	59.0	18.0	89.3	27.2	105.7	32.2	94.7	28.9	98.1	29.9
60	33.5	10.2	50.1	15.3	84.5	25.8	97.0	29.5	90.3	27.5	91.8	28.0
65	25.4	7.7	42.1	12.8	80.8	24.6	89.0	27.1	86.8	26.5	86.6	26.4
70	18.0	5.5	34.7	10.6	78.0	23.8	81.7	24.9	84.2	25.7	82.2	25.1
75	11.1	3.4	27.7	8.4	75.9	23.1	74.9	22.8	82.3	25.1	78.5	23.9
82 MAXIMUM	1.9	0.6	18.5	5.6	74.0	22.6	65.9	20.1	80.7	24.6	74.3	22.6

4.2 TURNING RADII, NO SLIP ANGLE
MODEL MD-81, -82, -83, AND -88

TURNING RADII DEPICTED REPRESENT THEORETICAL GEOMETRIC TURN CENTERS.



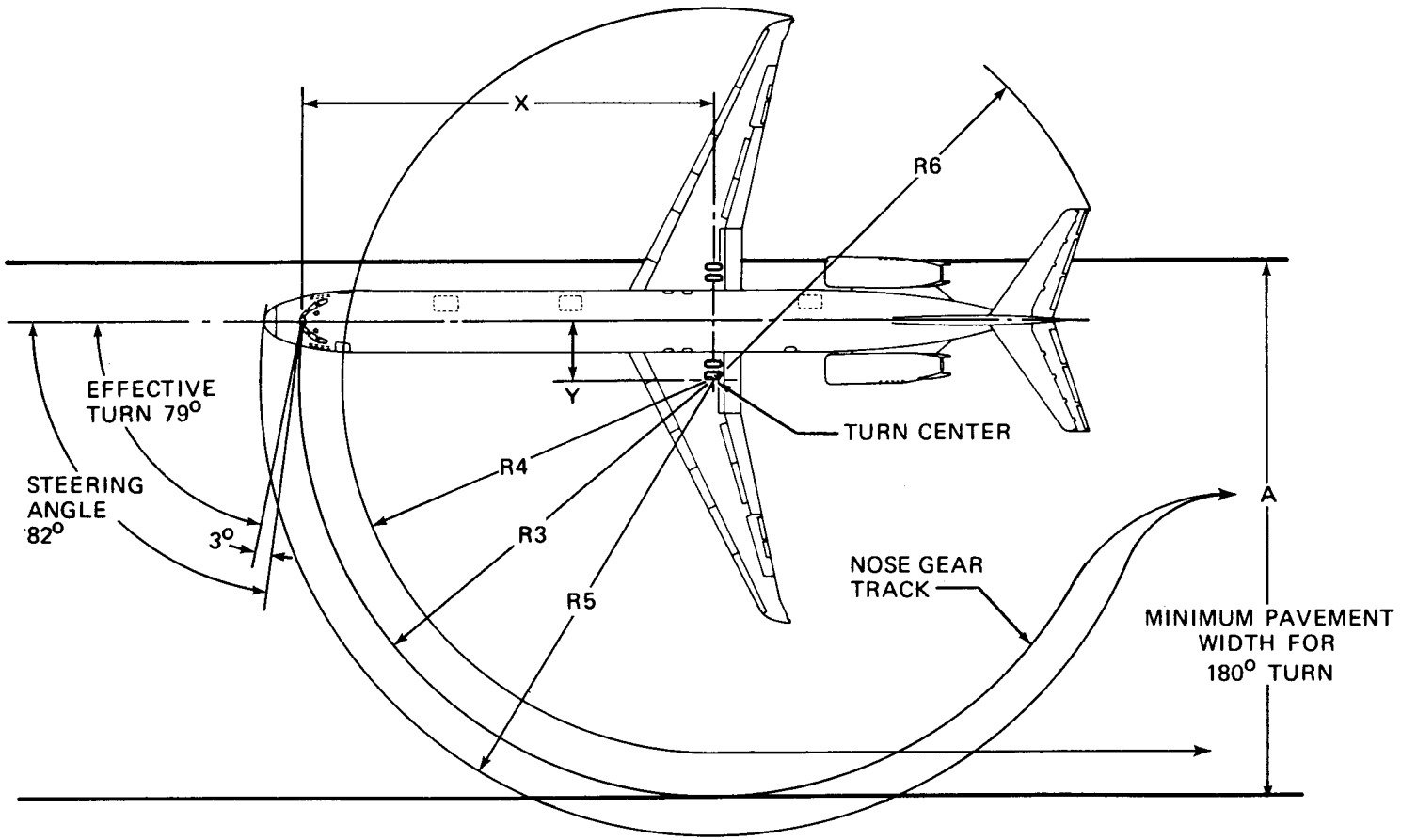
NOTE:

ACTUAL OPERATING DATA WILL BE GREATER THAN VALUES SHOWN SINCE TIRE SLIPPAGE IS NOT CONSIDERED IN THESE CALCULATIONS. CONSULT AIRLINE FOR OPERATING PROCEDURES.

*R-3 IS MEASURED TO OUTSIDE TIRE FACE

STEERING ANGLE (DEGREES)	R-1		R-2		R-3*		R-4		R-5		R-6	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	100.6	30.7	117.3	35.8	126.7	38.6	163.6	49.9	129.8	39.6	142.3	43.4
45	54.6	16.6	71.3	21.7	89.8	27.4	117.8	35.9	94.5	28.8	102.4	31.2
50	44.5	13.6	61.1	18.6	83.0	25.3	107.7	32.8	88.1	26.8	94.4	28.8
55	35.7	10.9	52.4	16.0	77.7	23.7	99.1	30.2	83.1	25.3	87.8	26.8
60	28.0	8.5	44.7	13.6	73.5	22.4	91.4	27.9	79.3	24.2	82.3	25.1
65	21.0	6.4	37.7	11.5	70.3	21.4	84.6	25.8	76.4	23.3	77.7	23.7
70	14.6	4.4	31.3	9.5	67.8	20.7	78.2	27.9	74.2	22.6	73.8	22.5
75	8.5	2.6	25.3	7.7	66.0	20.1	72.2	22.0	72.5	22.1	70.4	21.5
82 MAXIMUM	0.5	0.2	17.2	5.3	64.4	19.6	64.5	19.7	71.1	21.7	66.6	20.4

4.2 TURNING RADII, NO SLIP ANGLE
MODEL MD-87

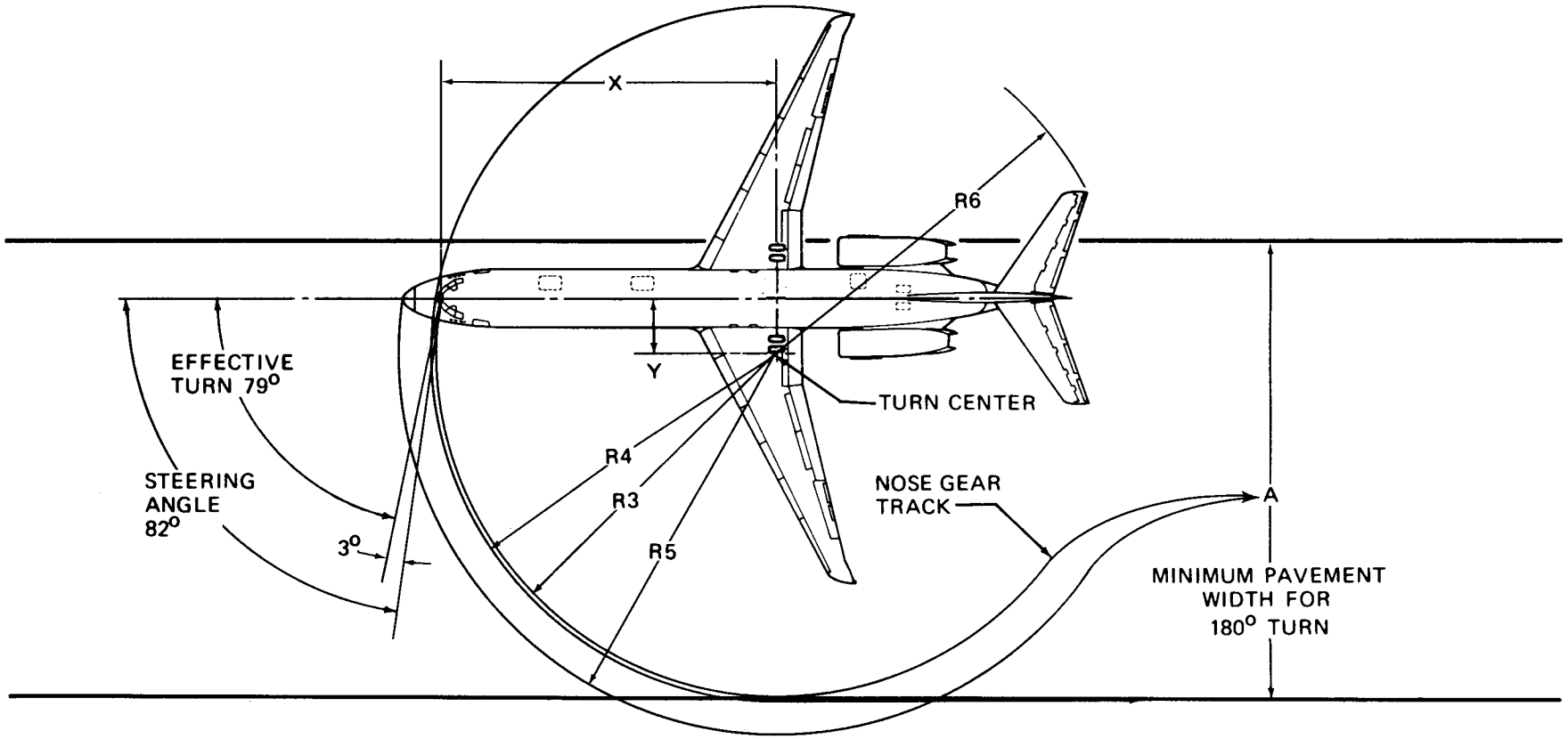


NOTE:

- 3° TIRE SLIP ANGLE ASSUMES 82° NOSE WHEEL DEFLECTION DURING VERY SLOW TURNING
- CONSULT AIRLINE FOR ACTUAL OPERATING DATA
- NO DIFFERENTIAL BRAKING OR UNSYMMETRICAL THRUST

MD-80	EFFECTIVE TURN ANGLE	X		Y		A		R3		R4		R5		R6	
		FT	M	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
–80	79°	72.4	22.1	14.0	4.3	98.8	30.1	73.6	22.4	69.6	21.2	81.2	24.7	75.9	23.1

4.3 MINIMUM TURNING RADII
MODEL MD-81, -82, -83, AND -88

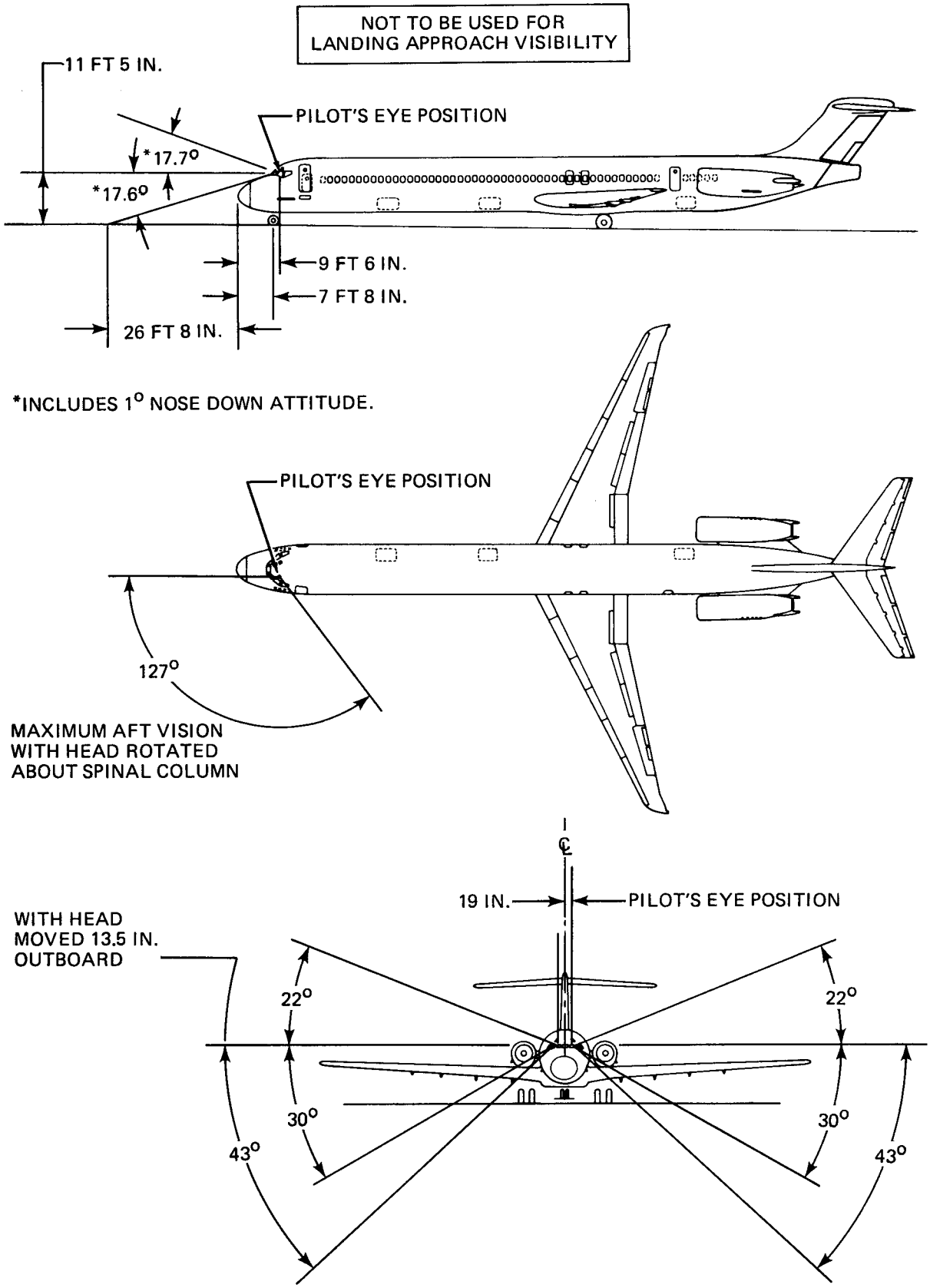


NOTE:

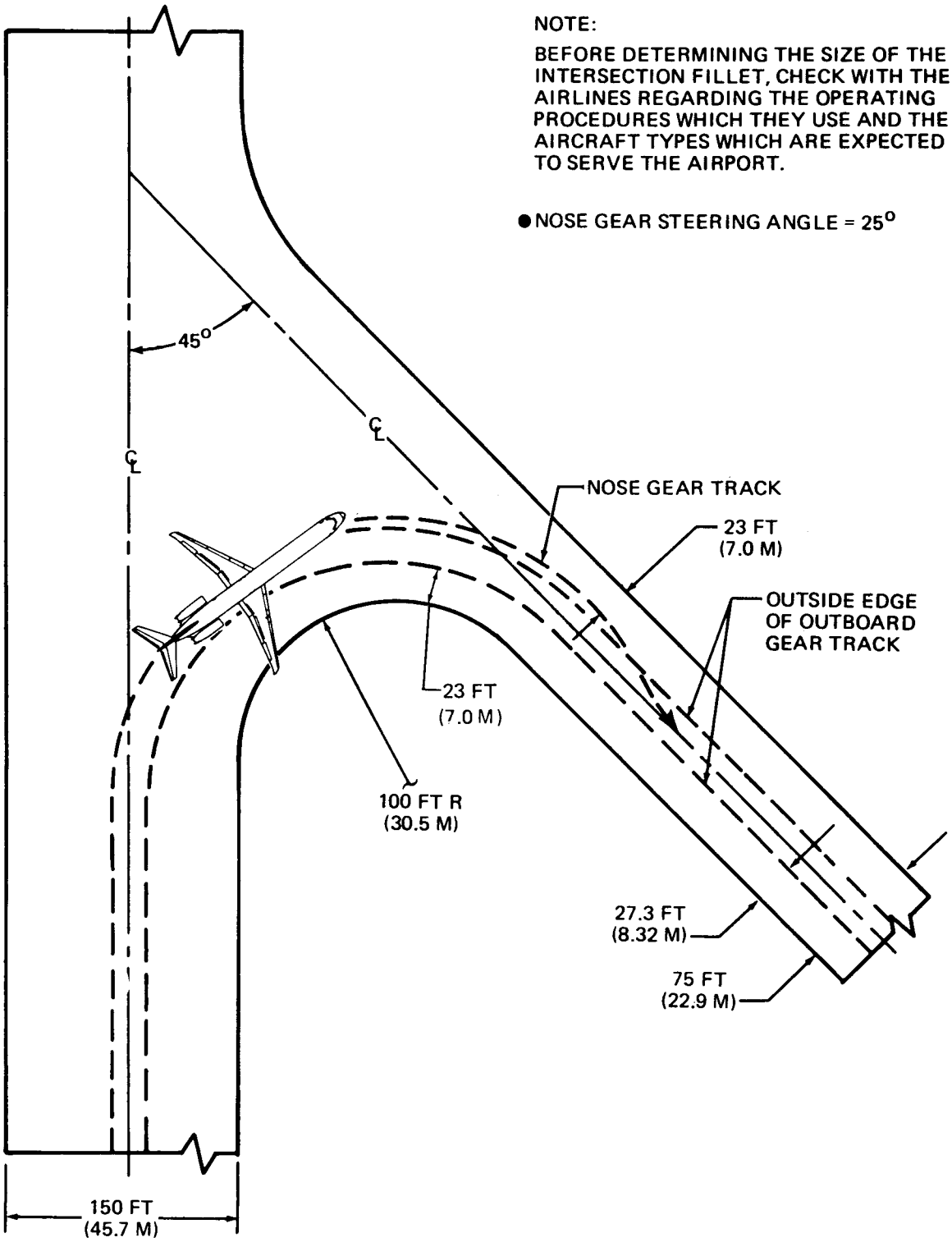
- 3° TIRE SLIP ANGLE ASSUMES 82° NOSE WHEEL DEFLECTION DURING VERY SLOW TURNING
- CONSULT AIRLINE FOR ACTUAL OPERATING DATA
- NO DIFFERENTIAL BRAKING OR UNSYMMETRICAL THRUST

MD-87	EFFECTIVE TURN ANGLE	X		Y		A		R3		R4		R5		R6	
		FT	M	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
-87	79°	62.9	19.2	12.2	3.7	87.4	26.6	64.1	19.5	67.7	20.6	71.6	21.8	68.1	20.8

4.3 MINIMUM TURNING RADII
MODEL MD-87

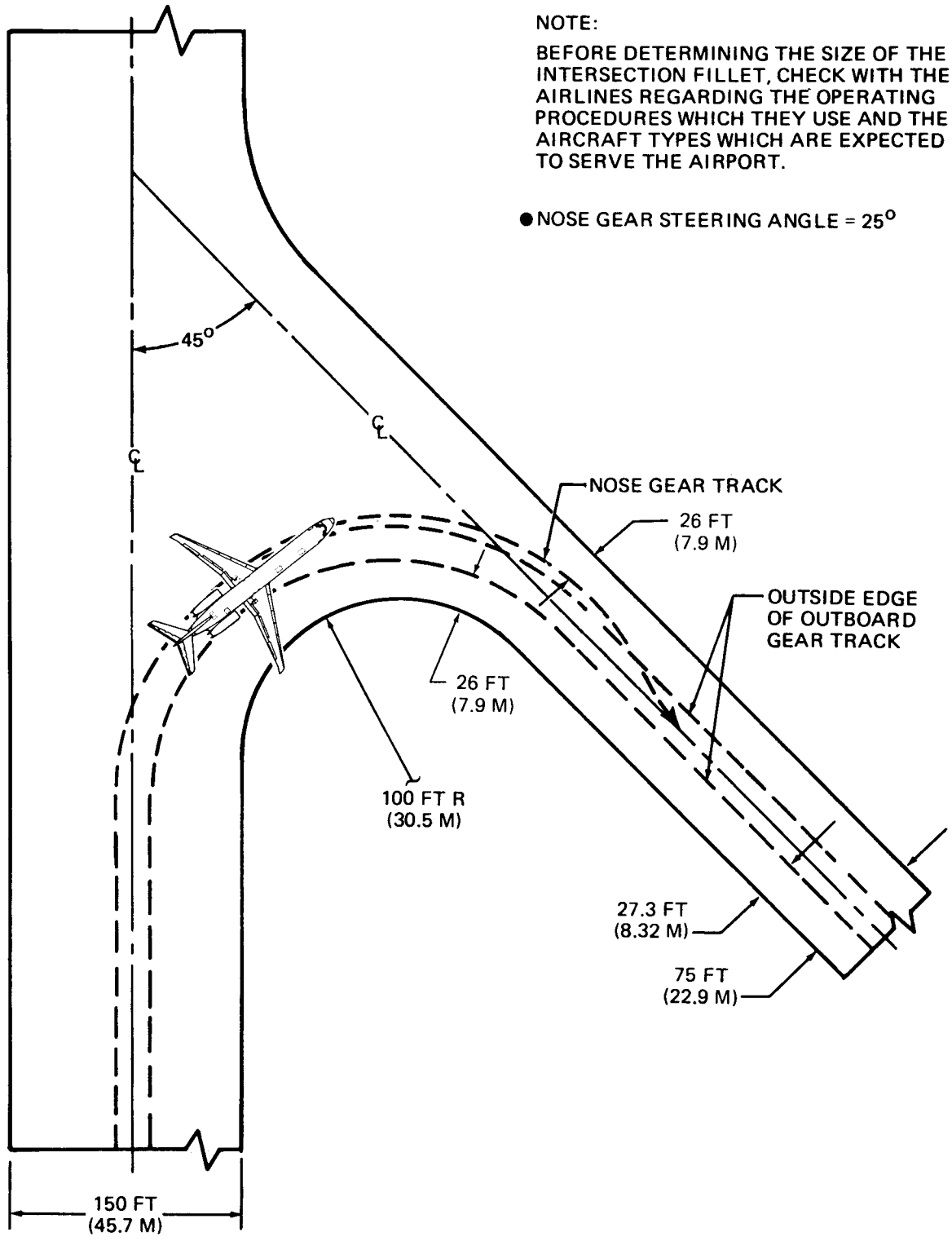


4.4 VISIBILITY FROM COCKPIT IN STATIC POSITION MODEL MD-80 SERIES

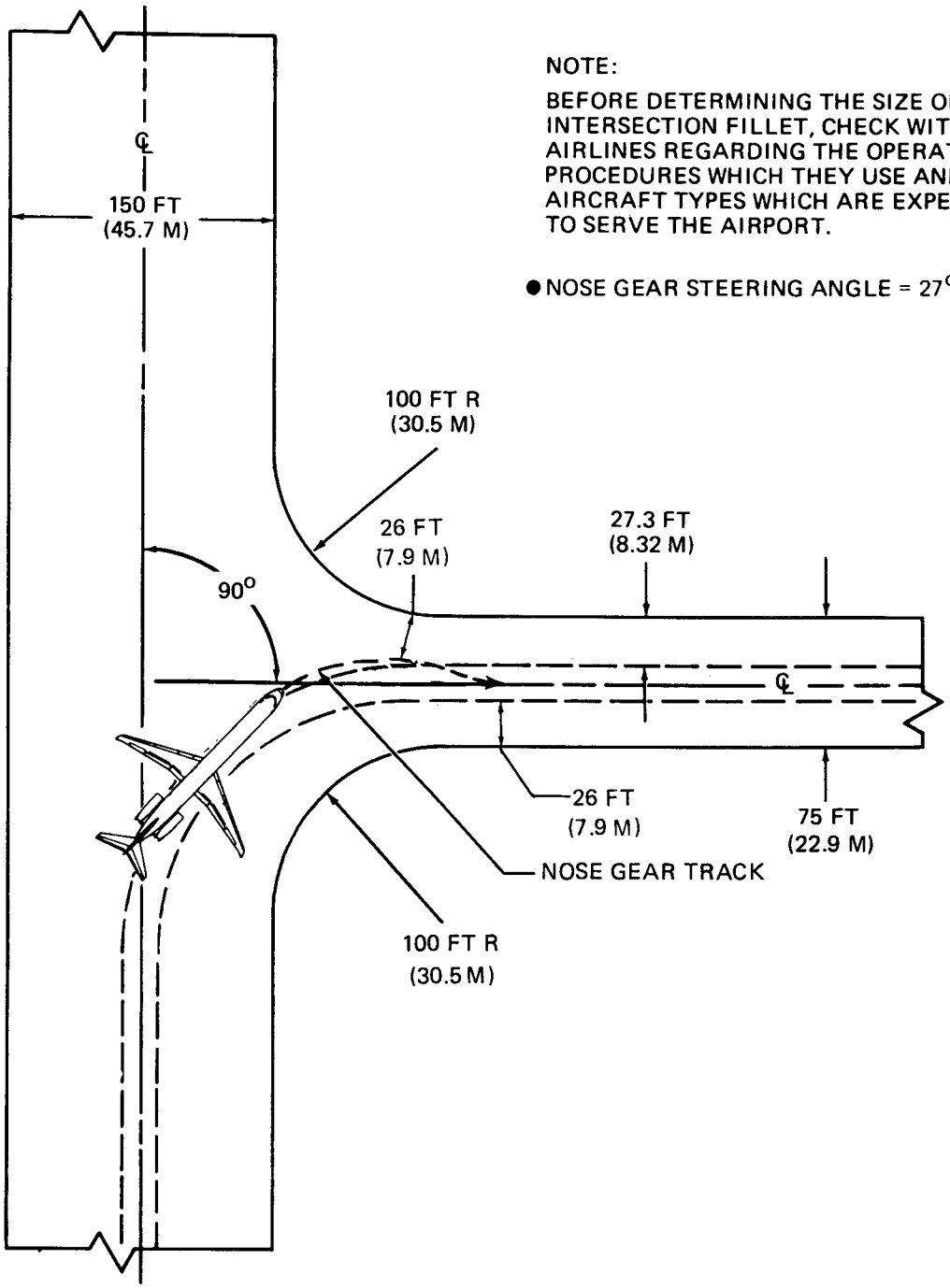


4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.1 MORE THAN 90-DEG TURN — RUNWAY TO TAXIWAY TURN
MODEL MD-81, -82, -83, AND -88

NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE

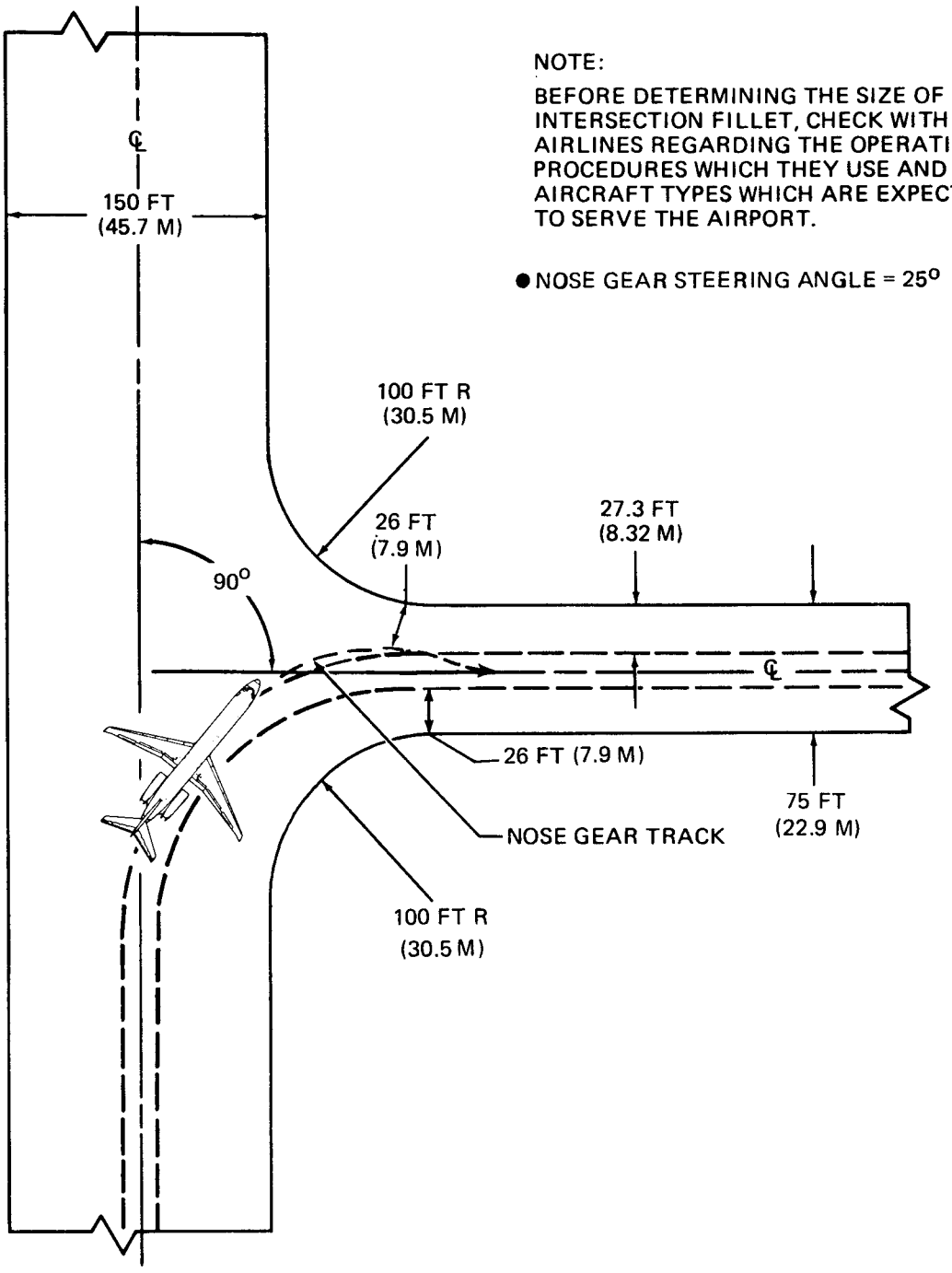


4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.1 MORE THAN 90-DEG TURN — RUNWAY TO TAXIWAY TURN
MODEL MD-87
NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE



4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.2 90-DEG TURN – RUNWAY TO TAXIWAY
MODEL MD-81, -82, -83, AND -88

NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE

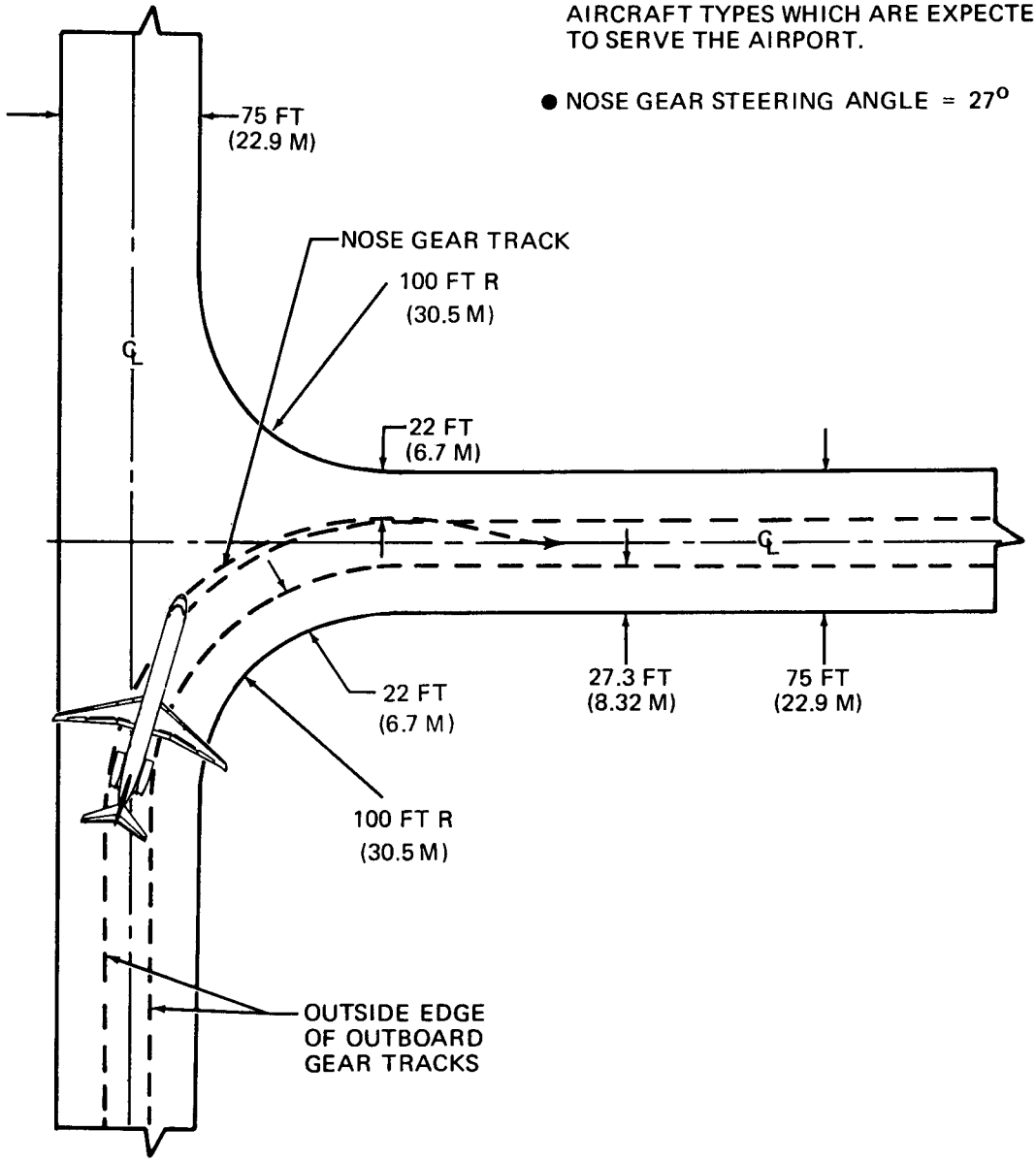


4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.2 90-DEG TURN – RUNWAY TO TAXIWAY
MODEL MD-87
NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE

NOTE:

BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES WHICH THEY USE AND THE AIRCRAFT TYPES WHICH ARE EXPECTED TO SERVE THE AIRPORT.

● NOSE GEAR STEERING ANGLE = 27°



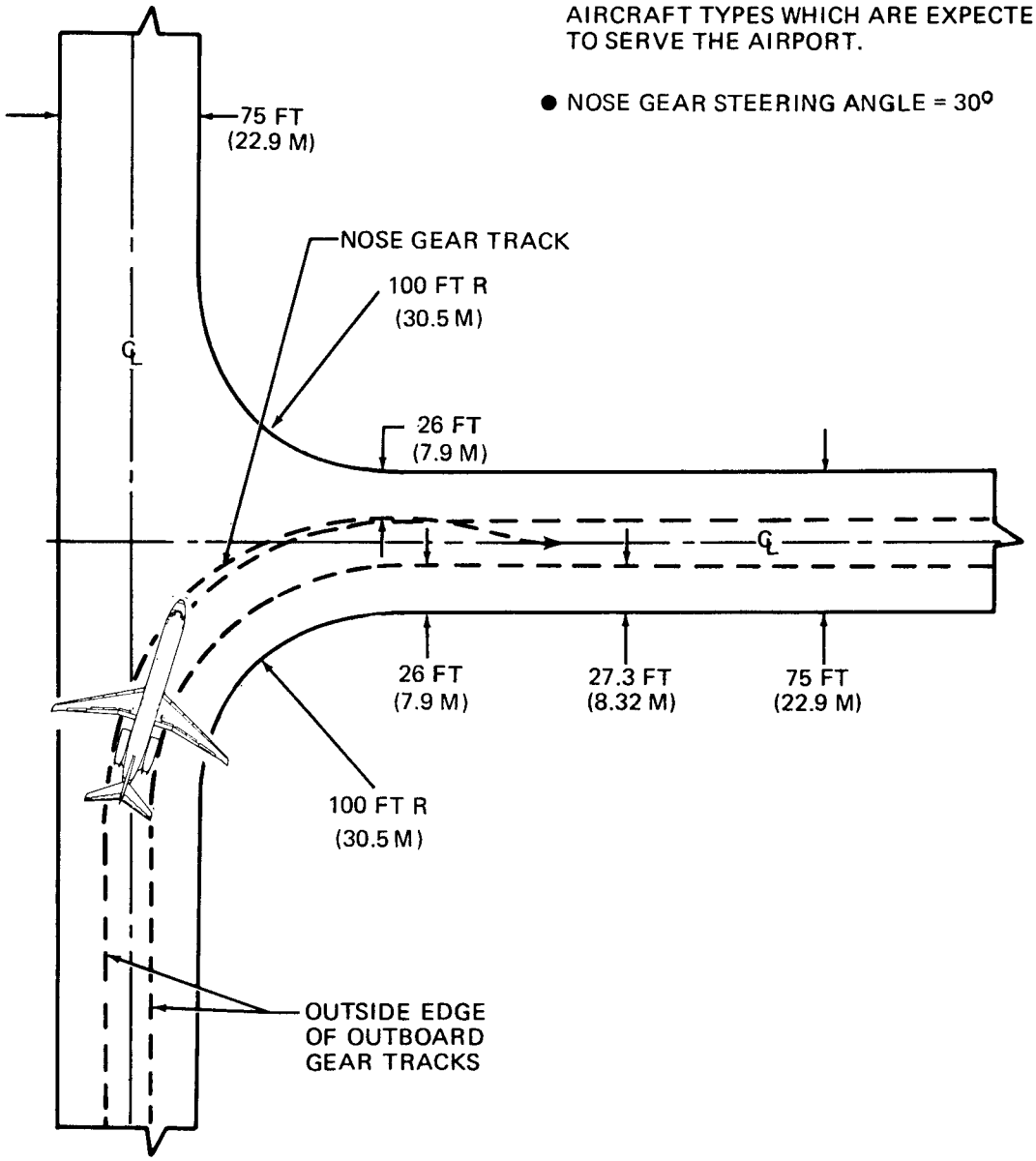
4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.3 90-DEG TURN – TAXIWAY TO TAXIWAY
MODEL MD-81, -82, -83, AND -88

NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE

NOTE:

BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES WHICH THEY USE AND THE AIRCRAFT TYPES WHICH ARE EXPECTED TO SERVE THE AIRPORT.

● NOSE GEAR STEERING ANGLE = 30°



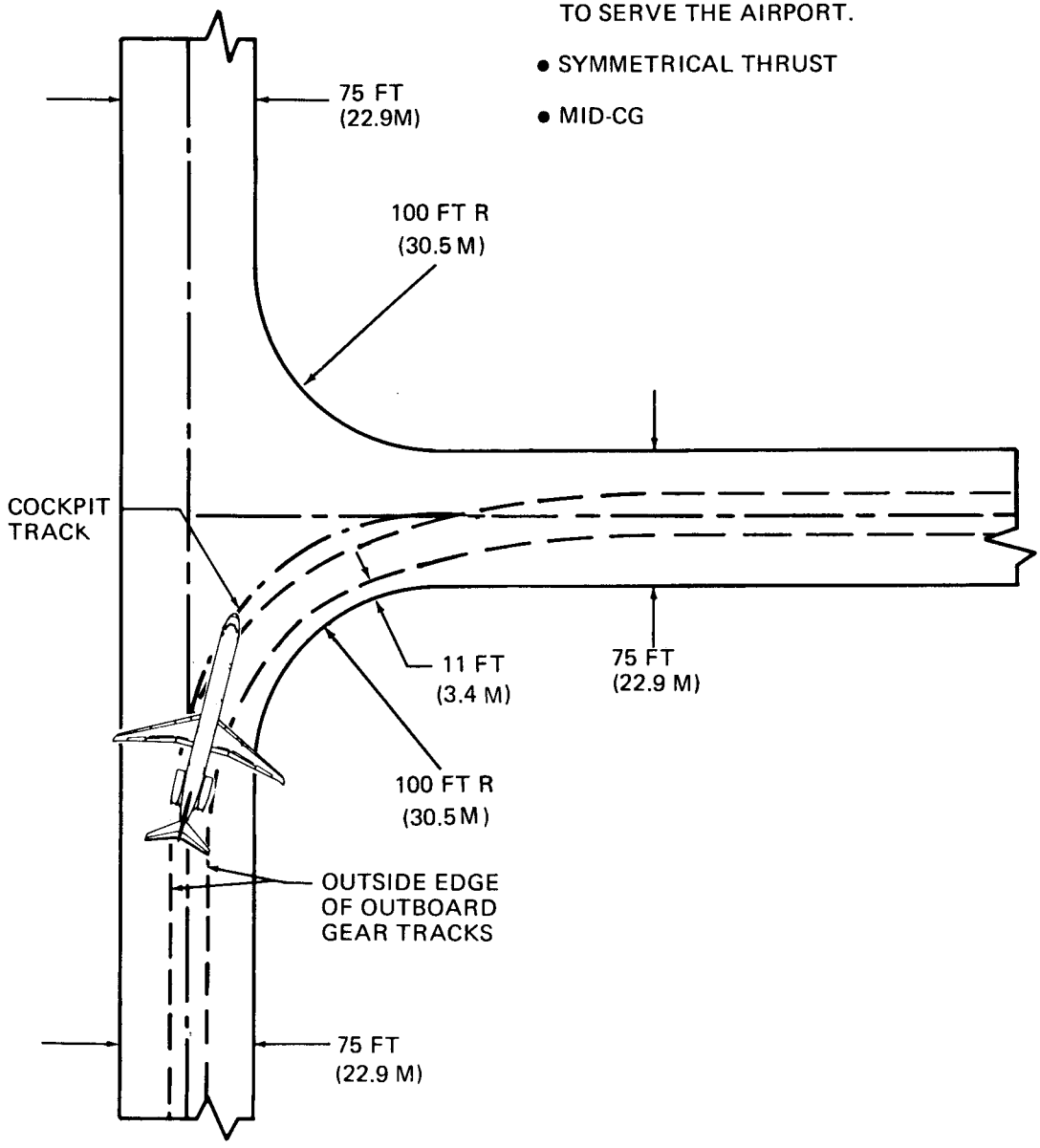
4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.3 90-DEG TURN – TAXIWAY TO TAXIWAY
MODEL MD-87

NOSE GEAR TRACKING BEYOND
TAXIWAY CENTERLINE

NOTE:

BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES WHICH THEY USE AND THE AIRCRAFT TYPES WHICH ARE EXPECTED TO SERVE THE AIRPORT.

- SYMMETRICAL THRUST
- MID-CG



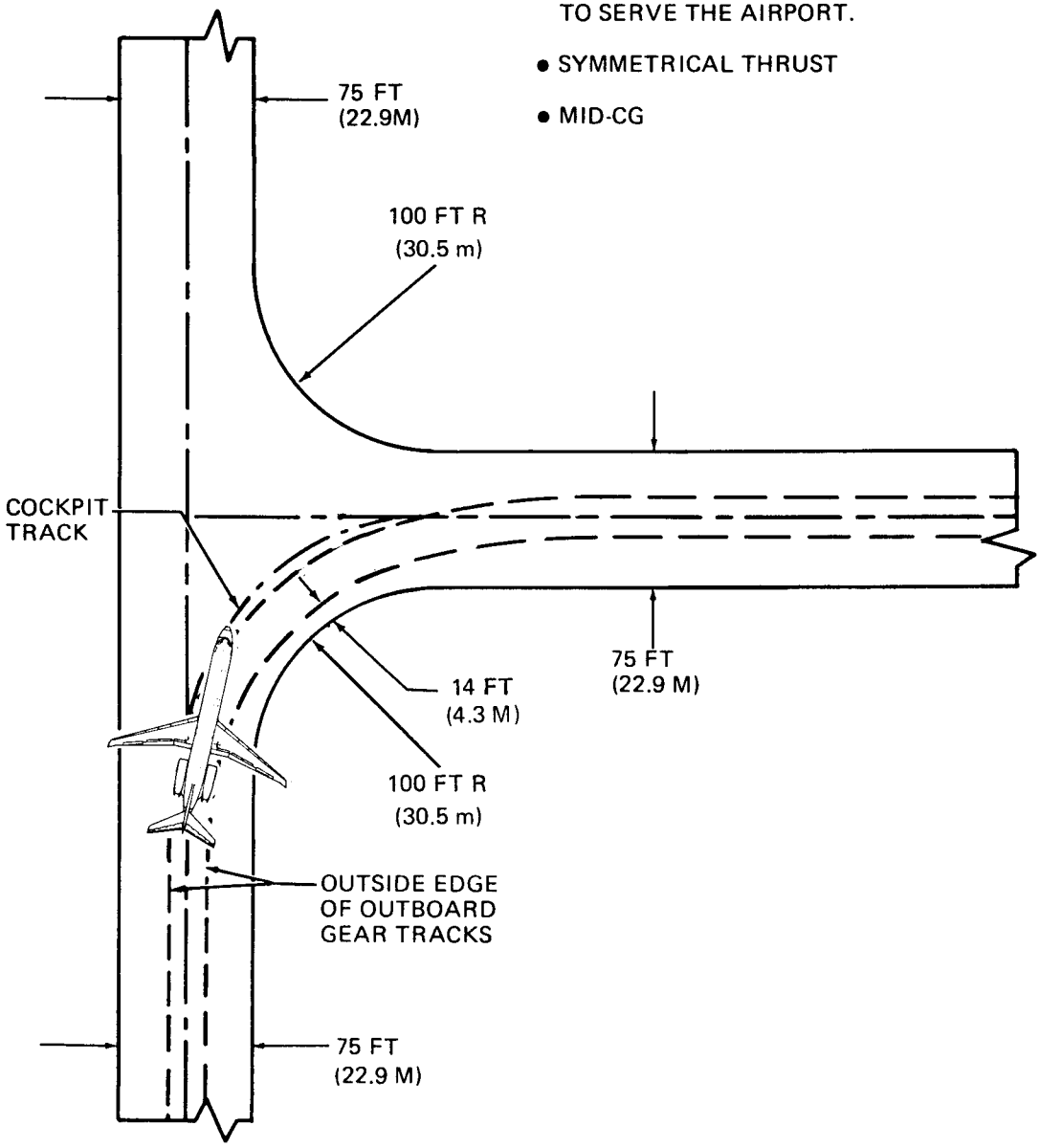
4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.4 90-DEG TURN – TAXIWAY TO TAXIWAY
MODEL MD-81, -82, -83, AND -88

COCKPIT TRACKS
CENTERLINE-TO-CENTERLINE

NOTE:

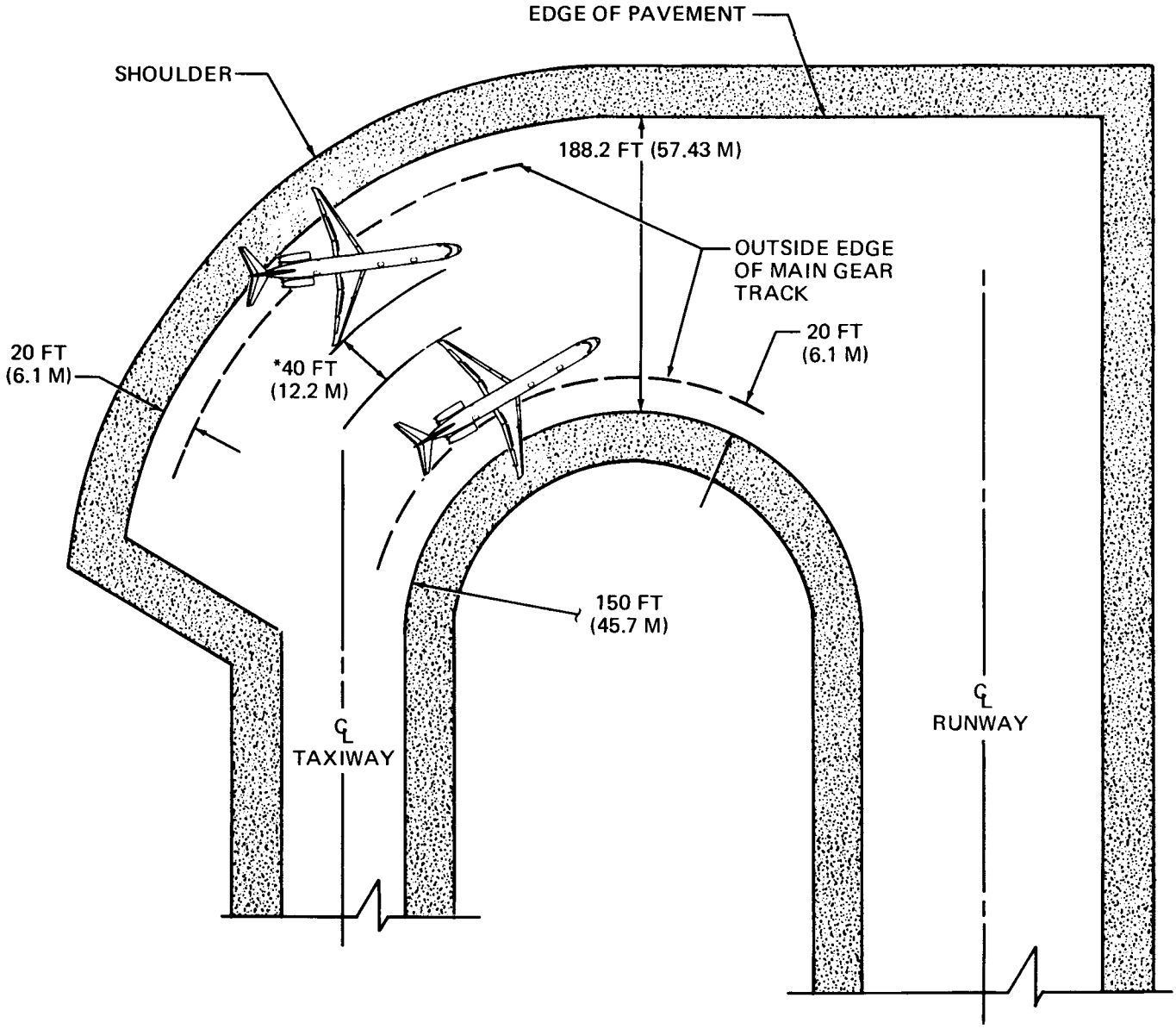
BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES WHICH THEY USE AND THE AIRCRAFT TYPES WHICH ARE EXPECTED TO SERVE THE AIRPORT.

- SYMMETRICAL THRUST
- MID-CG



4.5 RUNWAY AND TAXIWAY TURN PATHS
4.5.4 90-DEG TURN – TAXIWAY TO TAXIWAY
MODEL MD-87

COCKPIT TRACKS
CENTERLINE-TO-CENTERLINE

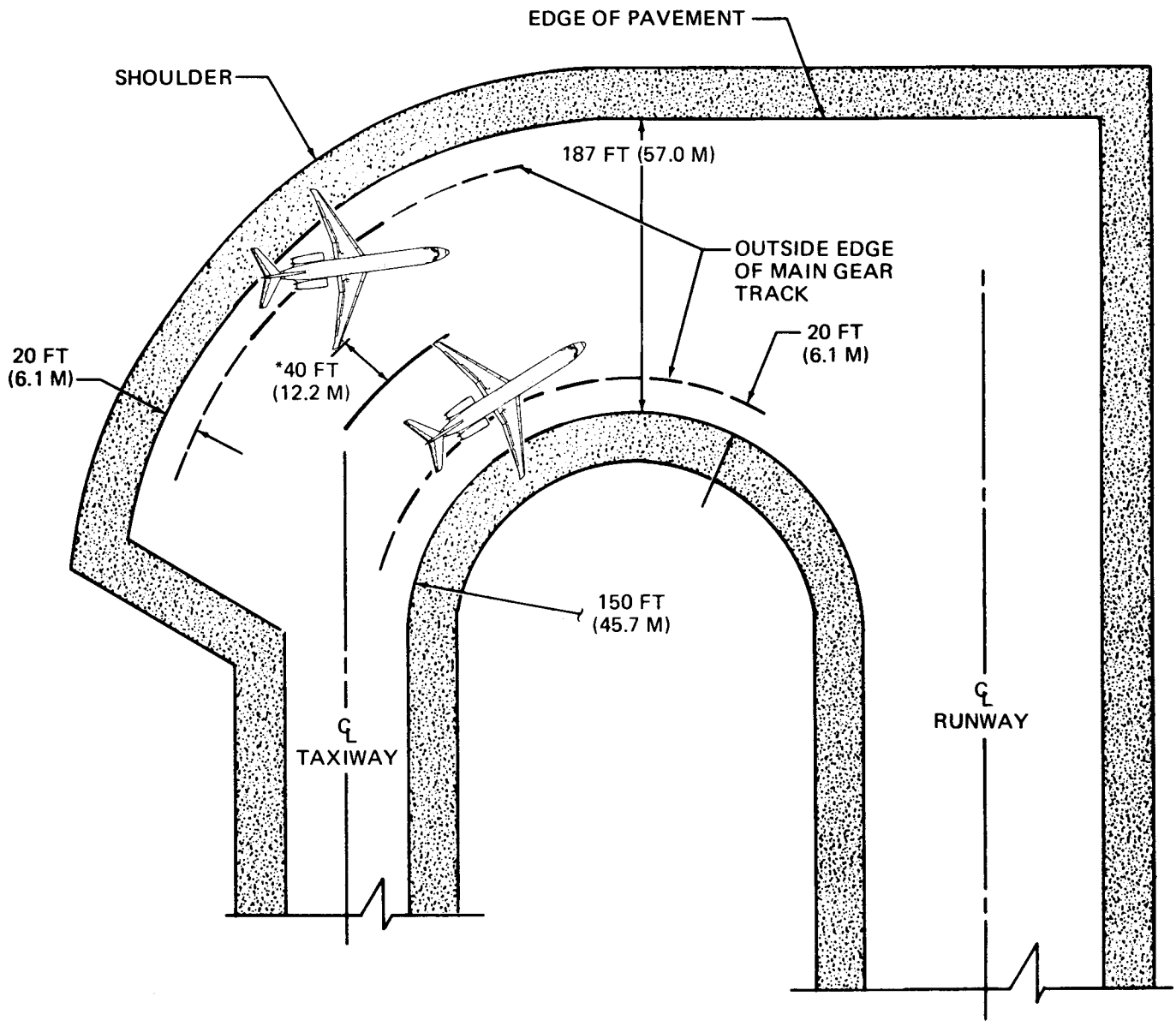


*MINIMUM CLEARANCE FOR MOVING AIRCRAFT = 40 FT (12.2 M)

NOTE:

COORDINATE WITH USING AIRLINES FOR SPECIFIC REQUIREMENTS PRIOR TO FACILITY DESIGN

4.6 RUNWAY HOLDING BAY (APRON)
MODEL MD-81, -82, -83, AND -88



*MINIMUM CLEARANCE FOR MOVING AIRCRAFT = 40 FT (12.2 M)

NOTE:

COORDINATE WITH USING AIRLINES FOR SPECIFIC REQUIREMENTS PRIOR TO FACILITY DESIGN

4.6 RUNWAY HOLDING BAY (APRON)
MODEL MD-87